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1. search the following applicants
   A. C. Richard Schlegel
   B. A Bennett Jenson
   search APS, DERWENT, and literature references.
2. search the following keywords
   A) papillomavirus HPV?
   B) capsid
   c) L1 protein
   search APS, DERWENT and literature references

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11 4-

02-194

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- AI
- G
- SI
- D

VIROLOGY

Volume 187, Number 2, April 1992

Contents

b350,351,357,358
23feb93 14:14:31 Us 000485 Session B503.3
$6.67 0.043 Hrs File357
$6.50 5 Type(s) in Format 5
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$13.17 Estimated cost File357
$3.89 0.024 Hrs File358
$3.89 Estimated cost File358
$5.35 0.027 Hrs File350
$5.35 Estimated cost File350
$7.33 0.037 Hrs File351
$7.20 4 Type(s) in Format 5
$7.20 4 Types
$14.53 Estimated cost File351
OneSearch, 4 files, 0.133 Hrs FileOS
$1.60 TYMNET
$38.54 Estimated cost this search
$41.33 Estimated total session cost 0.149 Hrs.

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903109

SYSTEM:OS - DIALOG OneSearch
File 350:Derwent World Patents Index
1963-1980, EQUIVALENTS THRU DW=9247
**FILE350: Format 9 includes the expanded patent table. Preformatted REPORTs are available. Type ?FMT350, ?NEWS350, ?RATES350 for more info.
File 351:DERWENT WORLD PATENTS INDEX-LATEST
1981+;DW=9301,UA=9241,UM=9214
**FILE351: Format 9 includes the expanded patent table. Preformatted REPORTs are available. Type ?FMT351, ?NEWS351, ?RATES351 for more info.
File 357:DERWENT BIOTECHNOLOGY ABS 1982-1993/FEB
(Copr. 1993 Derwent Pub. ltd.)
File 358:CURRENT BIOTECHNOLOGY ABS 1983-1993/MAR
(COPR. 1993 ROYAL SOC CHEM)

Set	Items	Description
		?s (papillomavir? or hpv or pv) and capsid and (l1 protein or l1)
	83	PAPILLOMAVIR?
	146	HPV
	1447	PV
	462	CAPSID
	0	L1 PROTEIN
	6372	L1
S1	4	(PAPILLOMAVIR? OR HPV OR PV) AND CAPSID AND (L1 PROTEIN OR L1)

?t1/5/1-4;e ashbaugh c

1/5/1 (Item 1 from file: 351)
004775488 WPI Acc No: 86-278829/42
XRAM Acc No: C86-120579
Type-specific papillomavirus DNA sequences and peptide(s) - useful in assays for specific Papillomavirus and in vaccines; DEOXYRIBONUCLEIC ACID
Patent Assignee: (GEOU) UNIV GEORGETOWN; (GEOU) GEORGETOWN UNIV
Author (Inventor): JENSON A B; LANCASTER D W; JENSON B A; LANCASTER W D
Number of Patents: 006
Number of Countries: 014
Patent Family:

CC	Number	Kind	Date	Week	
WO	8605816	A	861009	8642	(Basic)
EP	217919	A	870415	8715	
JP	62502378	W	870917	8743	
US	5057411	A	911015	9144	
EP	217919	B1	920805	9232	
DE	3686304	G	920910	9238	

Applications (CC,No,Date): DE 3686304 (860328); EP 86[illegible]2614 (860328); WO 86US629 (860328); WO [illegible]JS629 (860328); EP 8690261 (860328); JP 86502314 (860328); US 346283 (890501); EP 86902614 (860328); WO 86US629 (860328)
Language: English
EP and/or WO Cited Patents: 2.Jnl.Ref; US 4551270; 3.Jnl.Ref; EP 133123; EP 192001; EP 92456; US 4358535; US 4419446
Designated States
(National): DK; JP; SE
(Regional): AT; BE; CH; DE; FR; GB; IT; LU; NL; LI; SE
Filing Details: DE3686304 Based on EP 217919; DE3686304 Based on WO 8605816; EP0217919 Based on WO 8605816
Abstract (Basic): WO 8605816

The following are claimed: (1) a detectably labelled polynucleotide sequence specific for a given papilloma-virus (PV) type, pref. of 15-75 nucleotides; (2) isolated polynucleotide segment comprising a sequence coding for a type-specific PV gene prod., pref. of 15-75 nucleotides; (3) a polypeptide (I) having a sequence of aminoacids specific for a particular papillomavirus and representing a relatively small fragment of the naturally occurring L1 open reading frame polypeptide; (4) a method for identifying type-specific PV comprising contacting a sample contg. the virus with labelled antibody which is immunologically specific for the virus and determining the extent of binding of the antibody to the virus; and (5) a polypeptide fragment (II) of the L1 capsid protein having a genus-specific sequence of aminoacids.

More specifically (I) is formula: KNNKGDATLK. (II) is of formula RGQPLG.

USE/ADVANTAGE - Assays for type-specific PV, including DNA probes, RNA probes and immunoassays are now possible. Vaccines against specific PV's may also be produced. Thus specific etiology of papilloma and closely associated carcinoma can be identified. @(60pp Dwg.No.0/6)@

Abstract (US): 9144 US 5057411

New detectably-labelled polynucleotide sequence comprises a papillomavirus (PV) polynucleotide sequence to distinguish between PV types. Sequence has at least 15 (pref. 18-75) nucleotides of an L1 open reading frame type-specific sequence, but less than the entire genome. The polynucleotide segments are isolated.

Characterising PV type comprises contacting a sample contg. single stranded PV DNA with a PV type-specific polynucleotide probe specific for the PV type, and hybridising between the DNA and the probe. The probe-DNA hybrids are detected, the PV DNA characterised by presence or absence of hybrids. The probe is labelled e.g. by radio, fluorescence, chemiluminescent, enzyme, antibody, or free radical label. The probe is e.g. specific labelled DNA or RNA probe.

USE - By identifying segments common to all PV's and others confined to each individual PV, identification of individual (type-specific) or genus-specific PV is possible. @(22pp)@

Abstract (EP): 9232 EP 217919 B

A detectably labelled polynucleotide segment for distinguishing between pappilomavirus types, said segment comprising at least 5 nucleotides of the nucleotide sequence of a given pappilomavirus type which corresponds to BPV-1 L1 protein amino acids 251-291. Dwg.0/6
File Segment: CPI
Derwent Class: B04; D16;
Int Pat Class: A61K-039/42; C07H-015/12; C07K-007/06; C12N-015/37; C12Q-001/68
Manual Codes (CPI/A-N): B04-B02B4; B04-B03B; B04-B04A1; B04-B04C6; B04-C01B; B11-C07A; B12-K04A1; B12-K04A4; D05-H06; D05-H12
Chemical Fragment Codes (M1):
01 M423 M760 M903 N102 N133 N134 N135 N136 Q233 V600 V644 V754
02 M423 M750 M903 N102 N133 N134 N135 N136 Q233 V500 V560 V753
03 C811 M423 M430 M710 M781 M782 M903 N102 N133 N134 N135 Q233 Q505 V600 V611 V753 V802 V810

05 C811 H1 H100 H10[illegible] H181 H182 H4 H401 H481 H8[illegible] J011 J012 J1 J171 J172 J3 J371 M280 M311 M312 M313 M315 M321 M331 M332 M333 M342 M343 M349 M381 M391 M421 M423 M430 M510 M520 M530 M540 M620 M710 M781 M782 M903 N102 N133 N134 N135 P210 P831 Q233 Q505 V279 V600 V611 V802 V810 V901 V912 V913 V921
06 C811 F012 F423 H1 H100 H181 J0 J011 J012 J1 J111 J171 J3 J371 K0 L2 L250 M280 M311 M313 M315 M320 M321 M332 M333 M342 M343 M349 M381 M391 M423 M430 M510 M520 M521 M530 M540 M620 M710 M781 M782 M903 N102 N133 N134 N135 P831 Q233 Q505 V600 V611 V802 V810 V901 V912 V921
Chemical Fragment Codes (M6):
07 M903 P210 P831 Q233 Q505 R309 R513 R514 R515 R521 R614 R621 R623 R624 R625 R626 R627 R635 R639

1/5/2 (Item 1 from file: 357)
128888 DBA Accession No.: 92-01380
Expression of vaccinia recombinant HPV 16 L1 and L2 ORF proteins in epithelial cells is sufficient for assembly of HPV virion-like particles - human papilloma virus recombinant L1 and L2 protein production; vaccinia virus vector construction; virus-like particle expression in CV-1 cell culture; potential recombinant vaccine
AUTHOR: Zhou J; Sun X Y; Stenzel D J; +Frazer I H
CORPORATE SOURCE: Lions Human Immunology Laboratory, Princess Alexandra Hospital, Brisbane, Queensland 4102, Australia.
JOURNAL: Virology (185, 1, 251-57) 1991 CODEN: VIRLAX
LANGUAGE: English
ABSTRACT: Vaccinia virus (VV) plasmid pLC201VV was designed to co-express the L1 and L2 late genes of human papilloma virus type-16 (HPV16). The L1 gene from plasmid pHPV16 was cloned under the VV 4b promoter to form plasmid pLC200. The L2 gene from plasmid pHPV16 was cloned under the control of the VV 28K late promoter, and then cloned into plasmid pLC200 to form plasmid pLC201. An EcoRI-XbaI DNA fragment containing the E1/E4 gene from W12 cell cDNA and under the control of the VV 11K promoter was cloned into plasmid pLC201 to form plasmid pLC202. pLC201 and pLC202 were used to construct VV recombinants (pLC201VV and pLC202VV). L1 and L2 production occurred in CV-1 cells infected with pLC201VV, and 40 nm virus-like particles (VLPs) of density 1.31 g/ml were produced in the nuclei of cells producing both L1 and L2, but not in cells producing either L1 or L2. VLPs were isolated from cells by sucrose gradient sedimentation and shown to consist of capsomeres similar to HPV and contain glycosylated L1 viral capsid protein. The VV production method for HPV VLPs may be useful for biochemical studies and recombinant vaccine construction. (38 ref)
DESCRIPTORS: human papilloma virus recombinant L1 protein prep., L2 protein prep., late gene cloning, co-expression, vaccinia virus vector construction, virus-like particle expression in CV-1 cell culture, pot. recombinant vaccine mammal monkey kidney
SECTION: Pharmaceuticals-Vaccines; Microbiology-Genetics; Cell Culture-Animal Cell Culture (D4,A1,J1)

1/5/3 (Item 2 from file: 357)
122167 DBA Accession No.: 91-09809
Expression of human papilloma virus proteins in yeast Saccharomyces cerevisiae - protein secretion as fusion protein with yeast prepro-alpha-factor
AUTHOR: Carter J J; Yaegashi N; Jenison S A; +Galloway D A
CORPORATE SOURCE: Fred Hutchinson Cancer Research Center, Seattle, Washington 98104, USA.
JOURNAL: Virology (182, 2, 513-21) 1991 CODEN: VIRLAX
LANGUAGE: English
ABSTRACT: The L1 and L2 proteins of human papilloma virus (HPV) types 1, 6 and 16, and the E7 proteins of HPV 16 were expressed in Saccharomyces cerevisiae. The yeast-expressed proteins were readily detected by immunoblotting and were generally intact. The recombinant HPV 1 L2 and L2 proteins were indistinguishable from the major and minor capsid

proteins were secreted from yeast by fusion to the prepro-alpha-factor signal peptide. Following secretion of the HPV 16 E7 protein, a rapid method of purification was developed. These recombinant proteins were of the mol.wt. expected for the major and minor virion proteins. The yeast-expressed proteins were used as antigens to study the human immune response in Western blot assays, ELISA and in immune precipitation. One human serum reacted with intact, but not denatured HPV 16 L2 proteins, suggesting that the yeast-expressed proteins will be useful to detect antibodies reactive with conformational epitopes. (34 ref)
DESCRIPTORS: human papilloma virus recombinant protein expression in Saccharomyces cerevisiae, protein secretion as fusion protein with yeast prepro-alpha-factor mammal fungus
SECTION: Pharmaceuticals-Other; Microbiology-Genetics (D5,A1)

1/5/4 (Item 3 from file: 357)
071415 DBA Accession No.: 88-01763
Expression of human papilloma virus type 6 and type 16 capsid proteins in bacteria and their antigenic characterization - Escherichia coli expression of beta-galactosidase fusion proteins; vaccine and diagnostic reagent development
AUTHOR: Banks L; Matlashewski G; Pim D; Churcher M; Roberts C; Crawford L
CORPORATE AFFILIATE: Wellcome
CORPORATE SOURCE: Department of Biochemical Virology, The Wellcome Research Laboratories, Langley Court, Beckenham, Kent, BR3 3BS, UK.
JOURNAL: J.Gen.Virol. (68, Pt.12, 3081-89) 1987 CODEN: JGVIAY
LANGUAGE: English
ABSTRACT: The L1 and L2 capsid proteins encoded by human papilloma virus types 6 and 16 (HPV-6 and HPV-16) have been produced in Escherichia coli. Antisera were raised against the HPV-6 L1- and L2-beta-galactosidase (EC-3.2.1.23) fusion proteins and against a HPV-16 L1 C-terminal peptide 14 amino acids long. The HPV-16 L1 peptide antibodies are highly reactive with the HPV-16 L1-beta-galactosidase fusion protein but not against the equivalent HPV-6 L1-beta-galactosidase fusion protein. The effectiveness of these antibodies was compared with commercially available anti-bovine papilloma virus type 1 (BPV-1) antibodies. The anti-BPV-1 antibodies reacted well against HPV-6 L1-beta-galactosidase but not against HPV-16 L1-beta-galactosidase. The L2 portion of the HPV-6 L2-beta-galactosidase fusion protein was particularly immunogenic, since antibodies raised against it were predominantly reactive with the L2 moiety. The HPV-16 L1 peptide antibodies described will be preferred reagents for the specific detection of HPV-16 capsid antigens, which may be particularly important in early diagnosis of HPV-16 infection. (22 ref)
E.C. NUMBERS: 3.2.1.23
DESCRIPTORS: human papilloma virus type 6, type 16 capsid protein, beta-galactosidase fusion protein etc. expression in Escherichia coli, pot. vaccine, diagnostic reagent development bacterium mammal enzyme EC-3.2.1.23
SECTION: Pharmaceuticals-Vaccines; Pharmaceuticals-Other; Microbiology-Genetics (D4,D5,A1)

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E2	24	*AU=SCHLEGEL C
E3	1	AU=SCHLEGEL C T
E4	24	AU=SCHLEGEL D
E5	2	AU=SCHLEGEL D C
E6	4	AU=SCHLEGEL D E
E7	39	AU=SCHLEGEL E
E8	1	AU=SCHLEGEL E R
E9	7	AU=SCHLEGEL E S

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E12       26  AU=SCHLEGEL C

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?s e2 or e3;s au=jensen a
               24  AU=SCHLEGEL C
                1  AU=SCHLEGEL C T
      S2       25  AU="SCHLEGEL C" OR AU="SCHLEGEL C T"
c
Ref    Items  Index-term
E1         2  AU=JENSCH W
E2         4  AU=JENSCHKE W
E3        18 *AU=JENSEN A
E4         8  AU=JENSEN A B
E5         2  AU=JENSEN A E
E6         3  AU=JENSEN A H
E7         1  AU=JENSEN A N
E8         3  AU=JENSEN A P
E9        10  AU=JENSEN A S
E10        1  AU=JENSEN A T
E11       34  AU=JENSEN B
E12        9  AU=JENSEN B A

          Enter P or E for more
s e3-e10
               18  AU=JENSEN A
                8  AU=JENSEN A B
                2  AU=JENSEN A E
                3  AU=JENSEN A H
                1  AU=JENSEN A N
                3  AU=JENSEN A P
               10  AU=JENSEN A S
                1  AU=JENSEN A T
      S3       45  E3-E10
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               45  3
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?e au=jensen, a?

Ref    Items  Index-term
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E2         1  AU=JENSEN-KORTE U
E3         0 *AU=JENSEN, A?
E4         3  AU=JENSEN, B.
E5         1  AU=JENSEN, B. F.
E6         2  AU=JENSEN, B. K.
E7         1  AU=JENSEN, C. J.
E8         1  AU=JENSEN, E. B.
E9         1  AU=JENSEN, E. C.
E10        1  AU=JENSEN, E. D.
E11        1  AU=JENSEN, E. M.
E12        2  AU=JENSEN, E. O.

          Enter P or E for more
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=> fil uspat
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=> s papillomar v?                (papillomavir? or pv or hpv) and capsid and l1  (
            55 PAPILLOMAVIR?
          3393 PV
            71 HPV
           263 CAPSID
         18292 "L1"
         32714 "PROTEIN"
             4 "L1 PROTEIN"
                 ("L1"(W)"PROTEIN")
         18292 "L1"
L1           5 (PAPILLOMAVIR? OR PV OR HPV) AND CAPSID AND ("L1 PROTEIN" O
R "
               L1")

=> d 1-5

1.  5,180,806, Jan. 19, 1993, Polypeptides and compositions of human
**papillomavirus** latent proteins, diagnostic systems and methods;
Joakim Dillner, et al., 530/326, 324, 325 [IMAGE AVAILABLE]

2.  5,057,411, Oct. 15, 1991, Type-specific **papillomavirus** DNA
sequences and peptides; Wayne D. Lancaster, et al., 435/6, 5; 436/501,
811; 536/23.72, 24.32; 935/78 [IMAGE AVAILABLE]

3.  4,983,728, Jan. 8, 1991, Nucleic acid probes of human papilloma
virus; Albert Herzog, et al., 435/6, 91, 948; 436/501, 811; 536/23.72,
24.32; 935/9, 16, 17, 78, 88 [IMAGE AVAILABLE]

4.  4,777,239, Oct. 11, 1988, Diagnostic peptides of human papilloma
virus; Gary K. Schoolnik, et al., 530/326, 327, 328, 387.9, 389.4, 389.7,
389.8, 391.3; 930/220, DIG.811

5.  4,551,270, Nov. 5, 1985, DNA Fragments coding for polypeptides
containing at least one antigenic determinant of the **papillomavirus**,
particularly of the **HPV** 1a type and corresponding polypeptides;
Olivier Danos, et al., 530/327, 329; 930/220, DIG.811

=> s schlegel, c?/a in or schlegel c?/in
             5 SCHLEGEL, C?/IN
             0 SCHLEGEL C?/IN
L2           5 SCHLEGEL, C?/IN OR SCHLEGEL C?/IN

=> s jensen, a?/in
L3          49 JENSEN, A?/IN

=> s l2 and l3
L4           0 L2 AND L3

=> s (l2 or l3) and (papillomavir? or pv or hpv)
            55 PAPILLOMAVIR?
          3393 PV
            71 HPV
L5           0 (L2 OR L3) AND (PAPILLOMAVIR? OR PV OR HPV)
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L5            0 L1 AND (L2 OR L3)


L6            0 L2 AND L3

=> fil .biotech
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=> s (papillomavir? and capsid and "l1 protein")/ia
          1213 PAPILLOMAVIR?/BI
          1136 PAPILLOMAVIR?/AB
          1322 PAPILLOMAVIR?/IA
                 (PAPILLOMAVIR?/BI,AB)
          1554 CAPSID/BI
          2930 CAPSID/AB
          3348 CAPSID/IA
                 (CAPSID/BI,AB)
          1143 "L1"/BI
          7564 "L1"/AB
          7783 "L1"/IA
                 ("L1"/BI,AB)
        358108 "PROTEIN"/BI
        461568 "PROTEIN"/AB
        582180 "PROTEIN"/IA
                 ("PROTEIN"/BI,AB)
            70 "L1 PROTEIN"/IA
                 (("L1"(W)"PROTEIN")/IA)
L7          10 (PAPILLOMAVIR? AND CAPSID AND "L1 PROTEIN")/IA

=> d 1-10 .mh

L7   ANSWER 1 OF 10  COPYRIGHT 1993 ACS
TI   Self-assembly of human papillomavirus type 1 capsids by
     expression of the L1 protein along or by
     coexpression of the L1 and L2   ***capsid***  proteins
SO   J. Virol., 67(1), 315-22
AU   Hagensee, Michael E.; Yaegashi, Nobuo; Galloway, Denise A.
PY   1993
AN   CA118(7):55781r
AB   Vaccinia virus vectors were used to express the major (L1) and (L2)
   capsid proteins of human papillomavirus type 1
     (HPV-1) with the vaccinia virus early (p7.5K) or late (pSynth, p11K)
     promoters. All constructs expressed the appropriate-sized HPV
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proteins, and b[redacted] L1 and L2, singly or in [redacted]mbination, localized to the nucleus. Capsids were purified by cesium chloride d. gradient centrifugation from nuclei of cells infected with a vaccinia virus-L1 (vac-L1) recombinant or a vac-L1-L2 recombinant but not from vac-L2-infected cells. Electron microscopy showed that the particles were 55 nm in diam. and had icosahedral symmetry. Immunogold-labeled antibodies confirmed the presence of the L1 and L2 proteins in the HPV-1 capsids. Capsids contg. L1 alone were fewer and more variable in size and shape than capsids contg. the L1 and L2 proteins. The L1-plus-L2 capsids were indistinguishable in appearance from HPV-1 virions obtained from plantar warts. The ability to produce HPV capsids in vitro will be useful in many studies of HPV pathogenicity.

L7 ANSWER 2 OF 10 COPYRIGHT 1993 ACS
TI HPV-1 L1 protein expressed in cos cells displays conformational epitopes found on intact virions
SO Virology, 190(1), 548-52
AU Ghim, Shin Je; Jenson, A. Bennett; Schlegel, Richard
PY 1992
AN CA117(19):189783f
AB Seven polyclonal and monoclonal antibodies were characterized for their ability to react specifically with either conformational or nonconformational epitopes of the human papillomavirus (HPV)-1 virion. Using these antibodies, it was shown that the HPV-1 L1 protein (when expressed by an SV40 vector in cos cells) displayed conformational epitopes characteristic of intact viral particles. In addn., the L1 ***capsid*** protein was translocated normally into cell nuclei, was of appropriate size (57 kDa), and could be isolated in native form by immunopptn. techniques. Most importantly, the screening of expressed papillomavirus capsid proteins for reactivity with conformation-dependent antibodies represents a new, general methodol. for ensuring that such proteins will be suitable for use in vaccine development or in the serol. detection/typing of human papillomavirus infections.

L7 ANSWER 3 OF 10 COPYRIGHT 1993 ACS
TI Definition of linear antigenic regions of the HPV16 L1 capsid protein using synthetic virion-like particles
SO Virology, 189(2), 592-9
AU Zhou, Jian; Sun, Xiao-Yi; Davies, Huw; Crawford, Lionel; Park, David; Frazer, Ian H.
PY 1992
AN CA117(17):169102e
AB Mice of 3 haplotypes (H-2d, H-2b, and H-2d/b) were immunized with synthetic human papillomavirus (HPV)16-like particles (VLPs), produced using a vaccinia virus doubly recombinant for the L1 and L2 proteins of HPV16. The resultant anti-VLP antisera recognized HPV16 capsids by ELISA assay and baculovirus recombinant HPV16 L1 and L2 protein on immunoblot. Overlapping peptides corresponding to the HPV16 L1 amino acid sequences were used to define the immunoreactive regions of the L1 protein. The majority of the L1 peptides were reactive with IgG from the mice immunized with the synthetic HPV16 capsids. A computer algorithm predicted 7 B epitopes in HPV16 L1, 5 of which lay within peptides strongly reactive with the murine antisera. The murine anti-VLP antisera failed to react with the 2 peptides recognized by anti-HPV16L1 monoclonal antibodies raised by others against recombinant L1 fusion protein. Thus, immunoreactive epitopes of HPV16 defined using virus-like particles differ significantly from those defined using recombinant HPV16 L1 fusion proteins, which

implies that such fusion proteins may not be the antigens to look for in HPV16L1-specific immune responses in HPV-infected patients.

L7 ANSWER 4 OF 10 COPYRIGHT 1993 ACS
TI Identification of the nuclear localization signal of human papillomavirus type 16 L1 protein
SO Virology, 185(2), 625-32
AU Zhou, Jian; Doorbar, John; Sun, Xiao Yi; Crawford, Lionel V.; McLean, Cornelia S.; Frazer, Ian H.
PY 1991
AN CA116(5):38896y
AB Human papillomavirus type 16 (HPV16) L1 and L2 capsid proteins can be detected only in the nucleus of infected cells. For other nuclear proteins, specific sequences of basic amino acids (aa) termed nuclear localization signals (NLS) direct the protein from the cytoplasm to the nucleus. The authors used a series of deletion and substitution mutations of the HPV16 L1 protein, produced by recombinant vaccinia virus (rVV), to identify NLS within HPV16 L1 and showed that HPV16 L1 contains two NLS sequences, each contg. basic aa clusters. One NLS consisted of 6 basic aa (amino acids): KRKKRK from aa 525 to 530, at the carboxy terminal end of L1. The other NLS contained 2 basic aa clusters (KRK from aa 510 to 512 and KR at aa 525, 526) sepd. by 12 amino acids. Mutations in either NLS did not alter nuclear localization of L1 when the other remained intact, but mutations to both prevented nuclear localization of L1. The L1 NLS could be overridden by introduction of a membrane binding sequence at the amino terminal end of the protein. A database search showed that all sequenced papillomaviruses are predicted to have L1 and L2 capsid proteins with sequences of basic amino acids homologous with one or both NLS of HPV16 L1.

L7 ANSWER 5 OF 10 COPYRIGHT 1993 ACS
TI Characterization of murine polyclonal antisera and monoclonal antibodies generated against intact and denatured human papillomavirus type 1 virions
SO J. Virol., 65(3), 1578-83
AU Yaegashi, Nobuo; Jenison, Steven A.; Valentine, Janette M.; Dunn, Maureen; Taichman, Lorne B.; Baker, David A.; Galloway, Denise A.
PY 1991
AN CA114(17):162081b
AB Human papillomavirus type 1 (HPV1) virions, both as intact virion particles (IVP) and as detergent-denatured virions (DDV), were used to prep. polyclonal antisera and monoclonal antibodies (MAbs) in BALB/c mice. Anti-IVP antiserum contained type-specific HPV1 L2-reactive antibodies and no detectable HPV1 L1-reactive antibodies. Anti-IVP MAbs recognized a linear epitope between L2 amino acids 102 and 108 (PIDVVDP). Anti-DDV antiserum contained type-specific HPV1 L1-reactive and HPV1 L2-reactive antibodies. An anti-DDV MAb recognized a linear epitope between L1 amino acids 127 and 133 (AENPTNY). HPV1a L1- and L2-encoded polypeptides expressed in Saccharomyces cerevisiae and by in vitro translation were equiv. in size to the major and minor virion capsid proteins, resp.

L7 ANSWER 6 OF 10 COPYRIGHT 1993 ACS
TI Human papillomavirus type 1 produces redundant as well as polycistronic mRNAS in plantar warts
SO J. Virol., 64(6), 3144-9
AU Palermo-Dilts, Deborah A.; Broker, Thomas R.; Chow, Louise T.
PY 1990
AN CA113(7):53290c

AB Human papillomavirus type 1 (HPV-1) causes plantar warts. On the basis of previously mapped mRNAs and sequence homologies of HPV-1 to other papillomaviruses, the authors designed oligonucleotide primers and employed the polymerase chain reaction to recover HPV-1 cDNAs from plantar warts. Seven spliced RNA species were characterized, including three not previously detected, and the coding potentials of each were deduced. The most abundant viral mRNA encodes an E1i E4 protein. One new species is predicted to encode the full-length E2 protein, and another can, theor., encode the E2-C or E1-M proteins, three products that regulate mRNA transcription and DNA replication. One RNA species originating from a novel HPV promoter in the upstream regulatory region has the potential to encode the minor capsid protein L2. A newly reorganized E5a open reading frame (ORF) is contained in all mRNAs that are polyadenylated at the E-region poly(A) site and also in a putative L2 mRNA. Three distinct species, two of which are derived from the upstream regulatory region promoter, have the potential to encode the L1 protein; the third species also contains the entire coding region of the E1i E4 protein 5′ to the L1 ORF. Both the E1i E4 mRNA and the potentially bicistronic L1 mRNA are derived from a promoter located in the E7 ORF. The authors uncovered no evidence of alternatively spliced mRNAs that could account for the multiple, abundant E4 proteins in plantar warts, suggesting that posttranslational modification is mainly responsible for the obsd. protein heterogeneity.

L7 ANSWER 7 OF 10 COPYRIGHT 1993 ACS
TI Identification of immunogenic regions of the major coat protein of human papillomavirus type 16 that contain type-restricted epitopes
SO J. Gen. Virol., 70(11), 2973-87
AU Cason, John; Patel, Daksha; Naylor, Jennifer; Lunney, Declan; Shepherd, Philip S.; Best, Jennifer M.; McCance, Dennis J.
PY 1989
AN CA112(13):116820c
AB Regions were identified of the major capsid protein, L1, of the human papillomavirus (HPV) type 16 (HPV-16 L1), that are recognized by 5 monoclonal antibodies (MAbs) raised to a bacterial fusion protein contg. residues 172-375 of HPV-16 L1. All 5 MAbs recognized HPV-16-infected tissue sections by immunohistochem., but not sections infected with HPV-1a (cutaneous warts), HPV-6b or -11 (genital warts). MAbs 3D1, 5A4, and 1D6 also recognized HPV-2-infected sections (cutaneous warts); MAb 8C4 recognized only sections contg. HPV-16. Four MAbs (8C4, 3D1, 1D6, and 5A4) recognized a synthetic peptide corresponding to residues 269-284 of HPV-16 L1; within this region a min. antibody binding site was identified, a tripeptide 276-278. However, the complete epitope appears to extend beyond these residues and beyond HPV-16 L1 (269-284). The 5th MAb, 1C6, recognized bacterial fusion proteins contg. HPV-6b L1, -16 L1 or -18 L1 using immunoblots, yet appeared HPV-16-specific when tested on infected tissue sections. This MAb recognized 5 amino acids within a different region of HPV-16 L1 (residues 299-313).

L7 ANSWER 8 OF 10 COPYRIGHT 1993 ACS
TI Characterization of rare human papillomavirus type 11 mRNAs coding for regulatory and structural proteins, using the polymerase chain reaction
SO Virology, 172(2), 489-97
AU Rotenberg, Mitch O.; Chow, Louise T.; Broker, Thomas R.
PY 1989
AN CA111(21):188504e

AB Certain human papillomavirus (HPV) types cause warts, dysplasias, and carcinomas of the ano-genital and oral mucosa. Because of the inability to propagate HPVs in cultured cells, the paucity of viral mRNAs in human lesions, and the complexity of alternatively spliced transcripts derived from different promoters, it has not been possible to ascertain the exact structures of the majority of the mRNA species and the proteins encoded. The polymerase chain reaction was adapted to amplify cDNAs of rare, type 11 HPV mRNAs isolated from a productively infected human foreskin xenograft in an athymic mouse. The oligonucleotide primers were designed to flank each of the mRNA splice sites previously mapped by electron microscopic anal. of heteroduplexes formed between cloned HPV-11 DNA and viral mRNAs isolated from genital warts. The splice junctions were detd. by direct sequencing of the PCR-amplified cDNA products or after the cDNA was cloned into a plasmid vector. This provides the first direct evidence for the existence of rare mRNAs with the potential to encode regulatory proteins that have been hypothesized to exist for HPVs. Depending on the lengths of the upstream exons, the translation frame used and the possibility of internal reinitiation during translation, one pair of mRNAs with the same splice junction could encode the viral DNA copy no. modulating protein E1-M, the enhancer repression protein E2-C, or both. A second pair of mRNAs, also with identical splice junctions, encode the enhancer-regulating protein E2; the longer of the 2 could also encode, in its 5′ exon, either or both the E6 and E7 proteins. Finally, the doubly spliced late message for the major virion capsid protein L1 also contains the entire coding region for the early E1-E4 protein in the first 2 exons, with the initiation codon for the L1 protein located precisely at the splice acceptor of the third exon. The potential of this late mRNA to encode both the E1-E4 protein and the capsid protein could contribute to the preponderance of the E4 protein in the lesion.

L7 ANSWER 9 OF 10 COPYRIGHT 1993 ACS
TI Reactivities of polyclonal and monoclonal antibodies raised to the major capsid protein of human papillomavirus type 16
SO J. Gen. Virol., 70(1), 69-77
AU Patel, Daksha; Shepherd, Philip S.; Naylor, Jennifer A.; McCance, Dennis J.
PY 1989
AN CA110(11):93221a
AB Polyclonal and monoclonal antibodies were raised against a fusion protein contg. .beta.-galactosidase and part of the major capsid protein L1 of the human papillomavirus (HPV) type 16. The polyclonal antibodies cross-reacted with the L1 protein of several HPV types including HPV-1, -2, -6 and -11 when reacted with virus-infected tissue sections, and with HPV-6 and -18 L1 fusion proteins on Western blotting. Monoclonal antibodies against the L1 fusion protein of HPV-16 reacted only with HPV-16 L1 fusion proteins on Western blots and with HPV-16-contg. biopsy sections as assessed by in situ DNA-DNA hybridization. These antibodies did not detect HPV-6 L1 protein after Western blotting or in HPV-6-infected tissue sections, although one did react with an HPV-18 fusion protein after Western blotting. The monoclonal antibodies were able to detect HPV-16 antigens in routine formaldehyde-fixed, wax-embedded sections of cervical intraepithelial neoplasm sections. HPV-16 L1 proteins were seen in one-third of biopsies that were pos. using the polyclonal cross-reacting antisera. Polyclonal antibodies to fusion proteins contg. part of the minor capsid protein L2 of

HPV-6 or -16 appeared to be more type-specific as no cross-reactivity was seen when these antibodies were reacted with HPV-1- and -2-infected tissue sections.

L7 ANSWER 10 OF 10 COPYRIGHT 1993 ACS
TI Identification of the bovine papillomavirus L1 gene product using monoclonal antibodies
SO Virology, 165(2), 613-15
AU Cowsert, Lex M.; Pilacinski, W. P.; Jenson, A. Bennett
PY 1988
AN CA109(17):146101z
AB Monoclonal antibodies (MoAbs) produced against SDS-disrupted bovine papillomavirus type 1 (BPV-1) were used to identify the product of the L1 open reading frame (ORF) of BPV-1. MoAbs were tested in ELISA with purified BPV-1 major capsid protein (MCP), fusion proteins from 2 constructions of the BPV-1 L1 ORF, and 1 construction of the L2 ORF. All MoAbs reacted with purified MCP and both L1 fusion proteins. No MoAbs were reactive with the L2 fusion protein. Polyclonal antisera raised against SDS-disrupted BPV-1 were immunoreactive with both L1 and the L2 fusion proteins. These data show that the L1 ORF of BPV-1 encodes, at least in part, the MCP of BPV-1. Further, it has been shown that the L1 encodes the papillomavirus (PV) genus-specific epitope, PV broadly cross-reactive epitope, BPV minimally cross-reactive epitope, and a BPV-1 type-specific epitope.

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=> s (pv or hpv?)/ia and capsid/ia and "l1"/ia
          787 PV/BI
         2265 PV/AB
         2661 PV/IA
                (PV/BI,AB)
          198 HPV?/BI
          897 HPV?/AB
          912 HPV?/IA
                (HPV?/BI,AB)
         1554 CAPSID/BI
         2930 CAPSID/AB
         3348 CAPSID/IA
                (CAPSID/BI,AB)
         1143 "L1"/BI
         7564 "L1"/AB
         7783 "L1"/IA
                ("L1"/BI,AB)
L8         36 (PV OR HPV?)/IA AND CAPSID/IA AND "L1"/IA

=> s l8 not l7
L9         26 L8 NOT L7

=> d 1-26 .mh
```

L9 ANSWER 1 OF 26 COPYRIGHT 1993 ACS
TI Late promoter of human papillomavirus type 8 and its regulation
SO J. Virol., 66(6), 3485-93
AU Stubenrauch, Frank; Malejczyk, Jacek; Fuchs, Pawel G.; Pfister, Herbert
PY 1992
AN CA117(5):41691d
AB Human papillomavirus type 8 (HPV8) belongs to the HPV types assocd. with skin carcinomas of patients with epidermodysplasia verruciformis (EV). Its noncoding regulatory sequences (NCR) were shown to drive the expression of the reporter gene chloramphenicol acetyltransferase (cat) in transient

assays with human epithelial cells (HT3 cells). This constitutive activity could be enhanced by coexpression of the HPV8 transactivator protein E2. The anal. of 5′ deletions of the NCR showed that the EV-specific sequence motif M33 and the neighboring AP1 site are essential for the promoter activity, whereas 44 nucleotides located immediately upstream of M33 are strongly inhibitory. The same effects were obsd. in SV40 virus-immortalized fetal keratinocytes (SV61 cells) and spontaneously immortalized skin keratinocytes (HaCaT cells). By using primer extension and RNase protection analyses, 2 promoters could be identified within the HPV8 NCR. A nested set of weak signals, corresponding to start sites between positions 175 to 179, represented the previously described E6 promoter. The vast majority of transcripts was initiated at position 7535 and shown to undergo processing at an NCR-internal splice donor (positions 1 to 8). The promoter P7535 is similar to late promoters of other skin-assocd. papillomaviruses as far as localization, transcript structure, and sequence characteristics are concerned. To confirm that P7535-initiated transcripts proceed indeed to the L1 gene for the major capsid protein, viral mRNAs from an HPV8-induced lesion of a patient with EV were characterized by RNase protection and sequence anal. of polymerase chain reaction-amplified cDNAs. The NCR leader (positions 7535 to 4) appeared in 2 messages with 3 exons each. The third exon started with the second ATG codon of L1 in both cases; the short central exons from the 3′ part of the early coding region were defined by a common splice acceptor site (position 3303) and different splice donor sites (positions 3443 and 3704).

L9 ANSWER 2 OF 26 COPYRIGHT 1993 ACS
TI HPV-16 viral transcripts in vulvar neoplasia: preliminary studies
SO Gynecol. Oncol., 42(3), 250-5
AU Park, J. S.; Rader, J. S.; Wu, T. C.; Laimins, L. A.; Currie, J. L.; Kurman, R. J.; Shah, K. V.
PY 1991
AN CA116(13):124779u
AB Specific human papillomavirus (HPV) types are strongly assocd. with intraepithelial neoplasia and invasive cancer of the uterine cervix. The role of HPVs in the pathogenesis of invasive carcinoma of the vulva is poorly understood. In situ hybridization for the detection of subgenomic transcripts was used in 4 vulvar specimens to elucidate the role of HPV in women. The transcripts of the E6-E7 region were more abundant than those of the L1-L2 region in vulvar neoplastic tissues. The transcripts from the early and late regions of HPV-16 continued to increase with the differentiation of the epithelial cells in both the warty and the basaloid types of vulvar precancerous lesions. This pattern persisted in invasive warty carcinomas but not in basaloid invasive carcinomas. The transcripts in basaloid carcinoma were distributed in an even and discrete pattern. L1-L2-region transcripts, as well as viral capsid protein, were detected in focal areas of well-differentiated cells of invasive warty carcinoma. The expression of HPV-16 may be regulated by the degree of cellular differentiation.

L9 ANSWER 3 OF 26 COPYRIGHT 1993 ACS
TI Detection of genital papillomavirus types by polymerase chain reaction using common primers
SO APMIS, 99(7), 667-73
AU Jenkins, Andrew; Kristiansen, Bjoern Erik; Ask, Eirik; Oskarsen, Bente; Kristiansen, Ewy; Lindqvist, Bjoern; Trope, Claes; Kjoerstad,

Kjell
PY 1991
AN CA116(13):121986y
AB Eight genital human papillomavirus (HPV) types, including HPV16 and HPV18, were detected by PCR amplification of a 323-base-pair region of the genome within the L1 open reading frame (ORF). The primer sequences are: TGYAAATATCCWGATTWTWT and GTATCWACMACAGTAACAAA. The method will detect purified HPV16 DNA down to a concn. of as little as a single mol. in 100 .mu.L. The method is also applicable to purified DNA and crude lysates from tumor biopsies. Typing of the PCR product can be achieved with specific oligonucleotide probes.

L9 ANSWER 4 OF 26 COPYRIGHT 1993 ACS
TI Baculovirus expression of the human papillomavirus type 16 capsid proteins: detection of L1-L2 protein complexes
SO J. Gen. Virol., 72(12), 2981-8
AU Xi, Shang Zhong; Banks, Lawrence M.
PY 1991
AN CA116(7):52585c
AB The human papillomavirus (HPV) type 16 major capsid proteins L1 and L2 have been produced in a baculovirus expression system. Both proteins are expressed at a high level and can be readily solubilized. The L1 capsid protein migrates close to its expected Mr of 60 kDa. On the other hand L2 exhibits a much higher Mr migrating at 73 kDa, which is considerably greater than its predicted Mr of 50 kDa. The identity of both proteins has been confirmed also by Western blot anal. Both proteins are produced in drastically reduced amts. in the presence of tunicamycin. In addn. both L1 and L2 show interesting patterns of phosphorylation. L1 is phosphorylated only weakly and this appears to be quite labile, whereas L2 is very heavily phosphorylated and this, in contrast, appears to be very stable. A dual expression vector also was used for co-expressing the L1 and L2 proteins within the same baculovirus-infected cell. The results obtained from this system demonstrate the presence of protein complexes forming between the two capsid proteins. These studies indicate that at least the initial events in capsid assembly of HPVs can occur in the absence of viral DNA.

L9 ANSWER 5 OF 26 COPYRIGHT 1993 ACS
TI Antigenic and immunogenic epitopes shared by human papillomavirus type 16 and bovine, canine, and avian papillomaviruses
SO J. Virol., 65(12), 6862-71
AU Dillner, Lena; Heino, Pirkko; Moreno-Lopez, Jorge; Dillner, Joakim
PY 1991
AN CA116(1):4843p
AB All types of papillomaviruses (PV) share common, so-called group-specific epitopes. To identify the major group-specific epitopes, the authors immunized 26 guinea pigs or rabbits with purified bovine PV type 1 (BPV), canine PV, or avian PV from the common chaffinch. The resulting hyperimmune sera, as well as a com. available rabbit antiserum to BPV and seven monoclonal antibodies to BPV, were tested in an ELISA with a set of 66 overlapping 20-amino-acid peptides representing the complete sequence of the major capsid proteins (L1 and L2) of human PV type 16 (HPV 16). Sera from the same animals before immunization were used as controls. The minimal reactive epitopes within each peptide were further characterized by testing of truncated peptides. The

cross-reactive epitopes were clustered in two regions of L1, an internal region (at positions 171 to 235), which contained three epitopes, and the more reactive region at the carboxy terminus (at positions 411 to 475), which contained six epitopes. The most reactive of the HPV 16 broadly cross-reactive epitopes was a carboxy-terminal epitope which had the sequence DTYRF and which reacted with nine of the antisera to BPV, canine PV, or avian PV, with the com. available rabbit antiserum to BPV, and also with a mouse monoclonal antibody to BPV. Antipeptide antisera to all of the HPV 16 L1 peptides and to the most antigenically reactive of their truncated analogs were made in guinea pigs. Antipeptide antisera reactive with BPV were obtained for three of the cross-reactive epitopes, and one of these antisera allowed highly sensitive detection of group-specific PV antigen by immunoperoxidase staining.

L9 ANSWER 6 OF 26 COPYRIGHT 1993 ACS
TI Expression of vaccinia recombinant HPV 16 L1 and L2 ORF proteins in epithelial cells is sufficient for assembly of HPV virion-like particles
SO Virology, 185(1), 251-7
AU Zhou, Jian; Sun, Xiao Yi; Stenzel, Deborah J.; Frazer, Ian H.
PY 1991
AN CA115(23):251998u
AB A recombinant vaccinia virus termed pLC201VV was designed to coexpress the L1 and L2 late genes of human papillomavirus type 16 (HPV16). Synthesis of the L1 and L2 proteins occurred in cells infected with pLC201VV, and 40-nm virus-like particles with a d. of 1.31 g/mL were produced in the nucleic of cells synthesizing both L1 and L2, but not in cells synthesizing either protein alone. Virus-like particles were partially purified from infected cells by sucrose gradient sedimentation and shown to consist of capsomeres similar to HPV and contain glycosylated L1 viral capsid protein. The prodn. of HPV-like particles using recombinant vaccinia virus should be useful for biochem. studies and could provide a safe source of material for the development of a vaccine.

L9 ANSWER 7 OF 26 COPYRIGHT 1993 ACS
TI Type-specific and cross-reactive epitopes in human papillomavirus type 16 capsid proteins
SO Virology, 184(1), 460-4
AU Beiss, Barbara K.; Heimer, Edgar; Felix, Arthur; Burk, Robert D.; Ritter, Diane B.; Mallon, Robert G.; Kadish, Anna S.
PY 1991
AN CA115(17):181030w
AB Rabbit polyclonal and mouse monoclonal antisera were raised to C terminal peptides from the genital human papillomavirus (HPV) 16 L1 and L2 open reading frames (ORFs). Anti-L1 and -L2 peptide sera recognized HPV 16 L1 and L2 fusion proteins in Western blots and by immunopptn. In Western blot anal. of L1 proteins from different HPV types, antisera to the L1 peptide reacted only with HPV 16, thus identifying an HPV 16 type-specific linear epitope. Anti-L2 peptide sera reacted with L2 fusion proteins from HPVs 6 and 16, but not from BPV, thus identifying a partially cross-reactive epitope in the HPV 16 L2. Computer anal. of C terminal amino acid sequences of the L1 and L2 ORFs of multiple HPV types supported the Western blot findings. Despite the HPV 16 type specificity found in Western blots, anti-L1 peptide sera identified nuclear

antigen by immu[redacted]ytochem. in cervical biop[redacted]es infected with HPV 16, as well as other genital HPV types.
Anti-L2 peptide sera failed to recognize antigen in infected tissue.

L9 ANSWER 8 OF 26 COPYRIGHT 1993 ACS
TI Expression of human papillomavirus proteins in yeast Saccharomyces cerevisiae
SO Virology, 182(2), 513-21
AU Carter, Joseph J.; Yaegashi, Nobuo; Jenison, Steven A.; Galloway, Denise A.
PY 1991
AN CA115(1):2410a
AB The L1 and L2 proteins of human papillomavirus (HPV) types 1, 6, and 16 and the E6 and E7 proteins of HPV 16 were expressed in S. cerevisiae. The yeast expressed proteins were readily detected by immune blotting and were generally intact. The HPV 1 L1 and L2 proteins expressed in yeast were indistinguishable from the major and minor capsid proteins purified from HPV 1 virions as judged by gel electrophoresis and immunoblotting. The HPV 6 and HPV 16 L2 proteins and HPV 16 E7 proteins were secreted from yeast by fusion to the yeast pre-pro-.alpha.-factor leader sequence. Following secretion of the HPV 16 E7 protein a rapid method of purifn. was developed. The yeast expressed proteins were used as antigen targets to study the human immune response in Western blot assay, ELISA, and immune pptn. One human serum reacted with intact, but not denatured HPV 16 L2 proteins, suggesting that the yeast expressed proteins will be useful to detect antibodies reactive with conformational epitopes.

L9 ANSWER 9 OF 26 COPYRIGHT 1993 ACS
TI Nucleotide sequence of human papillomavirus (HPV) type 41: an unusual HPV type without a typical E2 binding site consensus sequence
SO Virus Res., 18(2-3), 179-89
AU Hirt, Lorenz; Hirsch-Behnam, Anja; De Villiers, Ethel Michele
PY 1991
AN CA115(1):2028g
AB The complete nucleotide sequence of human papillomavirus type 41 (HPV-41) has been detd. HPV-41 was originally isolated from a facial wart, but its DNA has subsequently been detected in some skin carcinomas and premalignant keratoses (Grimmel, M., et al., 1988, and E.-M. de Villiers, M. Grimmel, and C. Neumann, unpublished results). Anal. of the cloned HPV -41 nucleic acid reveals that its genome organization is similar to that of other papillomavirus types. Yet, the anal. indicates at the same time that this virus is most distantly related to all other types of human-pathogenic papillomaviruses sequenced thus far and appears to identify HPV-41 as the first member of a new subgroup of HPV. The overall nucleotide homol. to other sequenced HPV types is below 50%. The closest other HPV type is represented by HPV-18, sharing 49% identical nucleotides. The typical E2-binding sequence ACCN6GGT, found in all papillomaviruses analyzed to date, does not occur in the upper regulatory region of the HPV-41 genome. Modified E2-binding sequences, as described for BPV 1 (Li, R., et al., 1989), are located in the domain proximal to the E6 ORF. These are ACCN6GTT, AACN6GGT and the 2 perfect palindromic sequences AACGAATTCGTT.

L9 ANSWER 10 OF 26 COPYRIGHT 1993 ACS
TI The open reading frame L2 of cottontail rabbit papillomavirus

contains antibo[redacted]-inducing neutralizing epi[redacted]pes
SO Virology, 181(2), 572-9
AU Christensen, Neil D.; Kreider, John W.; Kan, Nancy C.; DiAngelo, Susan L.
PY 1991
AN CA114(17):162137z
AB Polyclonal antisera were generated against bacterially derived fusion proteins of the open reading frames (ORFs) of the capsid proteins of cottontail rabbit papillomavirus (CRPV). The carboxy-terminal two-thirds of CRPV L1 and the carboxy-terminal half of CRPV L2 were cloned into a bacterial expression vector and induced proteins were used as antigen and immunogen. The polyclonal antisera were tested in a series of immunol. assays, including ELISA, Western blot, and neutralization of CRPV. ELISA demonstrated that the polyclonal antisera raised against expressed L1 proteins reacted strongly to disrupted CRPV virion antigen and weakly both to intact CRPV virion and disrupted BPV-1 (bovine papillomavirus 1) virion. Anti-CRPV L2 antisera reacted strongly only to intact and disrupted CRPV virion antigen. Viral capsid proteins of CRPV were detected in Western blots of human HPV-11, BPV-1, and CRPV virus particles by these polyclonal antisera. The anti-L1 sera recognized the major capsid protein (60 kDa) and the anti-L2 sera identified a 76 kDa viral protein of CRPV. Only the antisera generated against expressed L2 neutralized CRPV. The neutralizing titer of the anti-L2 sera, however, was several orders of magnitude lower than the titer of a neutralizing polyclonal antiserum that was generated by immunizations with intact CRPV virions.

L9 ANSWER 11 OF 26 COPYRIGHT 1993 ACS
TI Definition of murine T helper cell determinants in the major capsid protein of human papillomavirus type 16
SO J. Gen. Virol., 71(11), 2691-8
AU Davies, D. Huw; Hill, C. Mark; Rothbard, Jonathan B.; Chain, Benjamin M.
PY 1990
AN CA114(5):40580t
AB Three murine major histocompatibility complex (MHC) class II-restricted T cell determinants were identified in the major capsid protein L1 of human papillomavirus (HPV) type 16. Peptides derived from HPV-16 L1, which contain putative T cell epitopes located by a predictive algorithm, were synthesized and tested for lymphoproliferative activity by direct immunization, followed by in vitro assay of responses to peptides or recombinant HPV-16 L1. The MHC restriction of the stimulatory peptides was detd. using blocking monoclonal antibodies against class II mols. The responses, which were specific for the priming peptides alone, cross-reacted with recombinant L1 but not with analogous peptides derived from other HPV types.

L9 ANSWER 12 OF 26 COPYRIGHT 1993 ACS
TI Identification of seroreactive regions of the human papillomavirus type 16 proteins E4, E6, E7 and L1
SO J. Gen. Virol., 71(11), 2709-17
AU Mueller, Martin; Gausepohl, Heinrich; De Martynoff, Guy; Frank, Rainer; Brasseur, Robert; Gissmann, Lutz
PY 1990
AN CA113(25):229160b
AB Small fragments of the DNA of human papillomavirus type 16 (HPV-16) were randomly cloned into the bacteriophage fd which

expresses the resulting peptides as part of its capsid. Antisera raised against different HPV-16 fusion proteins were used for screening of the phage clones and the reacting peptides were detd. by sequencing the inserted HPV-16 DNA fragments of the pos. recombinants. Seroreactive regions of the proteins derived from the E4, E6, E7 (two regions) and L1 (three regions) open reading frames could be found by this approach. Of these seven regions, four were defined by at least two overlapping inserts, thus limiting the domains to between 10 and 15 amino acids. In the case of the E4 open reading frame, the same region identified by immunoscreening was also found when synthetic overlapping octapeptides were tested by ELISA with the anti-E4 antiserum. Using an approach to predict receptor-like regions within the resp. proteins, five of the seven regions were also identified. From the data on these regions, synthetic peptides were produced and used for the detection of antibodies against HPV-16 proteins in human sera by ELISA.

L9 ANSWER 13 OF 26 COPYRIGHT 1993 ACS
TI Immunochemical method for detection of human papillomavirus antibodies, peptides useful in the method, and use of the method for diagnosis, especially of cervical carcinoma
SO PCT Int. Appl., 57 pp.
AU Dillner, Joakim; Dillner, Lena
PI WO 9004790 A1 3 May 1990
AI WO 89-SE612 30 Oct 1989
PY 1990
AN CA113(13):113688a
AB A method is provided for detection of human papillomavirus (HPV) for diagnosis, esp. for diagnosis of carcinoma or pre-stages thereof, or the risk of development of carcinoma. The method relies on detecting the presence of IgA, IgG, and IgM antibodies against papillomavirus virions in a body fluid, esp. a cervical secretion. The virions include individual virion proteins or peptides thereof. Thus, 66 peptides (20 amino acid residues each) with a 5 residue overlap to each other were synthesized according to the deduced amino acid sequences of the L1 and L2 open reading frames (encoding viral capsid proteins) for HPV16. The peptides were used in an ELISA testing sera from HPV16-carrying cervical neoplasia patients for reactivity with either IgA, IgG, or IgM. Reactivity for individual serum samples using individual peptides is shown. The 7 most immunoreactive peptides were also tested for IgA, IgG, and IgM reactivity in 60 control serum samples, derived from healthy donors or patients with irrelevant tumors. Most of these peptides showed significant immunoreactivity only with <10% of the control sera.

L9 ANSWER 14 OF 26 COPYRIGHT 1993 ACS
TI An antigen chimera of poliovirus induces antibodies against human papillomavirus type 16
SO J. Virol., 64(3), 1201-6
AU Jenkins, Owen; Cason, John; Burke, Karen L.; Lunney, Declan; Gillen, Alison; Patel, Daksha; McCance, Dennis J.; Almond, Jeffrey W.
PY 1990
AN CA113(3):21849a
AB It has been established that the surface of poliovirus type 1 can be extensively modified to incorporate antigenic domains from other poliovirus serotypes and from unrelated viruses. The fact that the modified (chimeric) viruses exhibit dual antigenicity and immunogenicity led to exploring the possibility of using the Sabin vaccine strain of poliovirus type 1 as a vector for the presentation of antigenic domains from human papillomavirus type 16 (HPV

-16), a virus assocd. with the development of cervical carcinoma. This report describes the construction and characterization of a chimeric poliovirus contg. a 16-residue sequence derived from the major capsid protein (L1) of HPV-16. This virus chimera stimulated the prodn. in rabbits of antibodies which recognized the HPV-16-derived peptide and an L1 fusion protein synthesized in Escherichia coli and detected HPV-16 in human biopsy material by immunoperoxidase staining. The possibility that poliovirus-HPV chimeras could be used as vaccines against HPV -16 is discussed.

L9 ANSWER 15 OF 26 COPYRIGHT 1993 ACS
TI Mapping of linear epitopes of human papillomavirus type 16: the L1 and L2 open reading frames
SO Int. J. Cancer, 45(3), 529-35
AU Dillner, Joakim; Dillner, Lena; Utter, Goeran; Eklund, Carina; Rotola, Antonella; Costa, Silvano; DiLuca, Dario
PY 1990
AN CA113(1):1232r
AB Certain types of human papillomavirus (HPV), notably HPV type 16, are assocd. with flat or inverted proliferative lesions of the cervix uteri that can progress to malignancy. As a first step towards the serol. study of the epidemiol. of HPV , the entire amino acid sequences of the 2 major viral capsid proteins of HPV type 16, L1 and L2 were synthesized, as a set of 66 synthetic 20-residue peptides with an overlap of 5 amino acids. The peptides were tested for reactivity with IgA, IgG and IgM antibodies in the sera of 30 patients with HPV-16-carrying cervical neoplasms. Both IgG and IgM antibody responses were detected, but most of the reactivity found was of the IgA class. The most immunoreactive peptides were further analyzed for reactivity with sera from 22 patients with parotid gland tumors and with sera from 38 healthy individuals. The L2-encoded protein contained only one major linear epitope, which was not specific for HPV-16-carrying neoplasms. In contrast, the L1-encoded protein contained several epitopes that were regularly immunoreactive with antibodies present in the sera of patients with HPV-16-carrying cervical neoplasms, but only rarely so in the sera of patients with other tumors or of healthy individuals.

L9 ANSWER 16 OF 26 COPYRIGHT 1993 ACS
TI Human T cell responses to human papillomavirus type 16 L1 and E6 synthetic peptides: identification of T cell determinants, HLA-DR restriction and virus type specificity
SO J. Gen. Virol., 71(2), 423-31
AU Strang, George; Hickling, Julian K.; McIndoe, G. Angus J.; Howland, Kevin; Wilkinson, David; Ikeda, Hitoshi; Rothbard, Jonathan B.
PY 1990
AN CA112(23):214980z
AB Four T cell determinants in the major capsid protein of human papillomavirus (HPV) type 16 L1 and one in the E6 protein assocd. with cellular transformation were defined using synthetic peptides to stimulate peripheral blood mononuclear cells from asymptomatic individuals. HLA-DR restriction was defined using murine L cells transfected with HLA-DR genes to present antigen. Responses to two of the five determinants by T cell lines and clones were shown to be specific for HPV-16 based on the lack of cross-recognition of the corresponding sequences of other known papillomavirus sequences (types 1a, 5, 6b, 8, 11, 18, and 33). The T cells raised against two of the other peptides

cross-reacted w[redacted] corresponding peptides f[redacted] other strains to varying extents, depending on their structural homol. The implications of these results regarding the prevalence of HPV-16 infection in the population and the possible diagnostic role of these responses in papillomavirus infection is discussed.

L9 ANSWER 17 OF 26 COPYRIGHT 1993 ACS
TI Immunological cross-reactivity to laboratory-produced HPV -11 virions of polysera raised against bacterially derived fusion proteins and synthetic peptides of HPV-6b and HPV -16 capsid proteins
SO Virology, 175(1), 1-9
AU Christensen, Neil D.; Kreider, John W.; Cladel, Nancy M.; Galloway, Denise A.
PY 1990
AN CA112(23):214795t
AB Polyzera raised in rabbits to bacterially derived fusion proteins and synthetic peptides of the L1 and L2 ORFs of human papillomaviruses (HPV)-6b and -16 were tested for cross-reactivity to lab.-produced infectious HPV-11 virions. The polyzera were analyzed in a series of 5 different immunol. assays including immunoperoxidase staining of the koilocytotic nuclei in sections of formalin-fixed, paraffin-embedded as well as fresh frozen sections of HPV-11 exptl. condylomas generated in the athymic nude mouse xenograft system, ELISA, Western blots, and neutralization of infectious HPV -11 virions. ELISA and Western blot assays were used to det. whether the polyzera identified external or internal epitopes on HPV -11 virions, and whether there was cross-reactivity to bovine papillomavirus-1 or lab.-produced cottontail rabbit papillomavirus virions. Seven of a total of 12 sera were pos. for reactivity to HPV-11 in one or more assays, but none of the reactivity was directed to external epitopes on the intact virions as detd. by ELISA. None of the L1 products generated group-specific antigen (GSA) antisera including a synthetic peptide spanning the GSA site. The combination of assays clearly demonstrated that apparent false pos. and false neg. reactivities of different antisera were obtained for each assay system tested. Thus, no single assay could be used reliably to det. the true antiviral reactivity of a given polyzera.

L9 ANSWER 18 OF 26 COPYRIGHT 1993 ACS
TI Humoral assays of human sera to disrupted and nondisrupted epitopes of human papillomavirus type 1
SO Virology, 174(2), 388-98
AU Steele, Jane C.; Gallimore, Phillip H.
PY 1990
AN CA112(15):136991n
AB The use of different assay systems and the disparity in results obtained has meant that there is little understanding about the role played by the humoral response during human papillomavirus (HPV) infection. Human antibody responses have so far appeared to be largely directed against the major capsid protein, L1. This protein possesses both type-specific and type-common antigenic determinants but it is not known which of these is important in vivo during the natural course of infection. In this study humoral responses of individuals to purified HPV 1 virions were tested in 3 types of antibody assay. Western blot anal. detected antibodies in only 8 of 83 serum samples, whereas an ELISA and immunopptn. assay using nondisrupted HPV 1 virions showed pos. antibody reactivities for 71 and

64 individuals, esp. It is suggested that e humoral response to L1 is mainly directed against native conformational epitopes present on the whole HPV 1 particle and that type-common epitopes are not largely involved. This was further demonstrated by the fact that when samples were tested in the same ELISA system using disrupted HPV 1 virions as the antigen instead of whole virus particles, the no. of pos. sera was reduced to 9 out of 83. Thus, humoral assays using antigenic material pertaining to disrupted HPV epitopes are of limited use, at least in the case of HPV type 1. There were no obvious correlations between the antibody assay results and clin. histories of wart infection except that a lower no. of pos. serum reactivities were found among the group of individuals claiming to have no past history of HPV infection.

L9 ANSWER 19 OF 26 COPYRIGHT 1993 ACS
TI Sensitive detection of nucleic acids and protein of human papillomavirus type 6 in respiratory and genital tract papillomata
SO J. Virol. Methods, 25(1), 31-47
AU Wu, Tzyy Choou; Mounts, Phoebe
PY 1989
AN CA111(25):228424n
AB A sensitive method was developed to detect and localize HPV-6 viral DNA, mRNA, and protein in biopsy specimens of genital and respiratory tract lesions by using in situ hybridization and immunoperoxidase assays on sections of plastic embedded tissue. This modified in situ hybridization technique, using ultrathin sections and strand-specific 3H-labeled riboprobes, offers the advantages of superior morphol. preservation and detection of viral genomes at low copy no. with good resoln. This modified immunocytochem. provides better sensitivity when compared to previous methods using paraffin-embedded materials. In respiratory tract lesions, immunoperoxidase assay detected only a few capsid antigen-pos. cells, while in the genital tract lesions, there were more capsid antigen-pos. cells. Southern transfer analyses and in situ hybridizations demonstrated the presence of more viral nucleic acids in genital tract papillomata than respiratory tract papillomata. Epithelial cells throughout the papillomata were infected by HPV-6 as evidenced by pos. hybridization, with more viral DNA present in superficial cells. Apparently, genital tract epithelium is more permissive for HPV-6 replication than respiratory tract epithelium. Using stand-specific probes synthesized from subgenomic fragments of the HPV-6 genome in conjunction with nuclease digestions, it was possible to demonstrate that HPV-6 transcripts specific to open reading frames (ORFs) E6, E7, E1, L1, and L2 occur in maturing superficial cells. In contrast, transcripts specific to ORFs E1, E2, E4, E5a, and E5b could be detected throughout the whole of the epithelium with more signals noted at the basal cell areas. In addn., the distribution of HPV-6 nucleic acids and protein in a carcinoma in situ of the larynx was analyzed. In comparison to benign respiratory tract papillomata, more viral DNA was found in the malignant lesion, but the pattern and distribution of transcription and capsid antigen was similar.

L9 ANSWER 20 OF 26 COPYRIGHT 1993 ACS
TI Differentiation-linked human papillomavirus types 6 and 11 transcription in genital condylomata revealed by in situ hybridization with message-specific RNA probes
SO Virology, 172(1), 331-40
AU Stoler, Mark H.; Wolinsky, Steven M.; Whitbeck, April; Broker, Thomas R.; Chow, Louise T.

PY 1989
AN CA111(19):168253u
AB Human papillomaviruses (HPVs) infect specific human epithelial tissues. Because viral propagation in cultured cells has not been achieved, studies of HPV genetic activities have been difficult and rely largely on analyses of patient specimens by conventional biochem. methods. HPV type 6 and type 11 infections often result in genital warts (condylomata acuminata). Structural mapping of RNAs from such warts reveals that they use alternative promoters, splice sites, and polyadenylation sites to produce complex families of overlapping mRNAs that span multiple open reading frames. Based on the mRNA structures, message-specific subgenomic clones of HPV-6 and HPV-11 were developed in pGEM vectors. Tritium-labeled, single-stranded RNA probes were synthesized in vitro and applied to serial thin sections of patient specimens for in situ hybridization. The data show the qual. and quant. transcription patterns of different viral messages in relationship to one another, to viral DNA replication, and to cellular differentiation. The viral E region is transcribed before the onset of vegetative DNA replication and continues to be expressed in increasing amts. in the maturing epithelium. Even in mature epithelia, E region messengers are far more abundant than L region mRNAs. The L region messages encoding capsid proteins are truly late in that they appear concomitant with or after the onset of vegetative viral DNA replication and are only present in the superficial strata of the epithelium, which contain the oldest and most differentiated keratinocytes. Abundant intron material derived from processing E region transcripts accumulates in the nuclei. Strictly nuclear signals from the L region transcripts in the midepithelium suggest that regulation of their expression is at the level of transcription elongation.

L9 ANSWER 21 OF 26 COPYRIGHT 1993 ACS
TI Expression in Escherichia coli of seven DNA fragments comprising the complete L1 and L2 open reading frames of human papillomavirus type 6b and localization of the 'common antigen' region
SO J. Gen. Virol., 70(3), 543-55
AU Strike, David G.; Bonnez, William; Rose, Robert C.; Reichman, Richard C.
PY 1989
AN CA110(19):167069f
AB Mol. cloning was used to express human papillomavirus type 6b (HPV-6b) antigens in E. coli. Seven genomic DNA fragments of HPV-6b which together comprise the complete L1 and L2 open reading frames, known to code for capsid proteins, were cloned and expressed in E. coli as both .beta.-galactosidase and TrpE fusion proteins. Western blots of HPV-6b .beta.-galactosidase fusion proteins using genus-specific antisera produced by immunization of rabbits with disrupted bovine papillomavirus type 1 (BPV-1) showed that polypeptides encoded by two DNA fragments from the mid portion of L1 of HPV-6b were cross-reactive. Only one of these two polypeptides reacted with antisera raised against disrupted HPV-1, directly demonstrating that this polypeptide contains the papillomavirus common antigen. The cross-reactive region was confirmed by reversing antigen and antibody. Polyclonal antisera were raised against the seven HPV-6b .beta.-galactosidase fusion proteins and tested against BPV-1 virion proteins on Western blots. Only antiserum against the mid portion of L1 of HPV-6b reacted with BPV-1 major capsid protein. HPV-6b fusion

proteins were also used to test human sera for antibodies reactive in Western blots. Serum samples from 38 patients with documented HPV-6 infections and from 22 presumably uninfected controls were tested. Antibodies were not detected in any of the sera to any of the seven fusion proteins. HPV-6b .beta.-galactosidase fusion proteins are antigenic and can be used on Western blots to localize immunol. reactive subregions of proteins by reacting protein fragments with antisera from immunized animals. However, alternative methods will be required to detect anti-HPV antibodies in human sera.

L9 ANSWER 22 OF 26 COPYRIGHT 1993 ACS
TI Detection of human papillomavirus capsid antigens in various squamous epithelial lesions using antibodies directed against the L1 and L2 open reading frames
SO Virology, 164(2), 467-77
AU Firzlaff, Juliane M.; Kiviat, Nancy B.; Beckmann, Anna Marie; Jenison, Steven A.; Galloway, Denise A.
PY 1988
AN CA109(11):90524v
AB HPV6 and HPV16 infect the squamous epithelium of the genital tract and are thought to be involved in the pathogenesis of benign and malignant lesions. HPV6 is primarily found in benign condylomas whereas HPV16 is present in dysplasias and in invasive squamous cell carcinomas. To examine the expression of the major and minor capsid proteins in these lesions, polyclonal antisera directed against bacterially derived fusion proteins harboring different restriction fragments of the L1 and L2 ORFs of HPV6b and HPV16 were generated. L1 ORF-specific antisera were not type-specific and detected the major capsid antigen in lesions infected with related HPV types. Anti-L2 ORF antisera could distinguish among HPV1, HPV6, and HPV16 when the fusion protein used as the immunogen did not harbor the amino-terminus of the L2 ORF. The anti-L1 ORF antisera were employed to detect the major capsid protein in various lesions by immunohistochem. staining. Lesions harboring HPV16 were pos. in a high percentage of cervical intraepithelial neoplasia I-II (87%), and less frequently in carcinomas in situ (29%) or invasive carcinomas (17%). In all cases capsid antigen expression was restricted to cells showing some differentiation at the surface or periphery of the lesion.

L9 ANSWER 23 OF 26 COPYRIGHT 1993 ACS
TI Expression of human papillomavirus type 6 and type 16 capsid proteins in bacteria and their antigenic characterization
SO J. Gen. Virol., 68(12), 3081-9
AU Banks, L.; Matlashewski, G.; Pim, D.; Churcher, M.; Roberts, C.; Crawford, L.
PY 1987
AN CA108(13):109354t
AB The L1 and L2 ***capsid*** proteins encoded by human papillomavirus types 6 and 16 (HPV-6 and HPV-16) were synthesized in bacteria. Antisera were raised against the HPV-6 L1- and L2-.beta.-galactosidase fusion proteins and against an HPV-16 L1 C-terminal peptide which was 14 amino acids long. The HPV-16 L1 peptide antibodies were highly reactive with the HPV-16 L1-.beta.-galactosidase fusion protein but not against the equiv. HPV-6 L1 -.beta.-galactosidase fusion protein. The effectiveness of these antibodies was compared with com. available antibovine

papillomavirus type 1 (BPV-1) antibodies and the results demonstrated that the anti-BPV-1 antibodies reacted well against HPV-6 L1-.beta.-galactosidase but not against HPV-16 L1-.beta.-galactosidase. In addn., the L2 portion of the HPV-6 L2-.beta.-galactosidase fusion protein appeared particularly immunogenic, since antibodies raised against this fusion protein were predominantly reactive with the L2 moiety. The HPV-16 L1 peptide antibodies described here will be preferred reagents for the specific detection of HPV-16 capsid antigens, which may be particularly important in early diagnosis of HPV-16 infection.

L9 ANSWER 24 OF 26 COPYRIGHT 1993 ACS
TI Identification of the human papillomavirus type 6b L1 open reading frame protein in condylomas and corresponding antibodies in human sera
SO J. Virol., 61(9), 2684-90
AU Li, Chou Chi; Shah, Keerti V.; Seth, Arun; Gilden, Raymond V.
PY 1987
AN CA107(15):130590f
AB Genital warts (condylomata acuminata) are among the most frequent sexually transmitted infections. Human papillomavirus type 6 (HPV-6), which is etiol. related to a majority of these lesions, has not been propagated in tissue culture. Two forms of HPV-6 viral antigens were generated: a chem. synthesized oligopeptide (referred to as the C-terminal synthetic peptide) corresponding to residues 482 to 495 of the 500-amino-acid-long L1 open reading frame (ORF), and a bacterially expressed 54-kilodalton (kDa) fusion protein contg. the N-terminal 13 amino acids encoded by the .lambda. bacteriophage cII gene followed by one vector-insert junctional residue and 462 amino acids of the L1 ORF sequence (residues 39 to 500). The cII-L1 fusion protein was specifically recognized by an antipeptide serum directed against the N-terminal 13 amino acids derived from the cII gene, an antiserum raised against the C-terminal synthetic peptide, and a genus-specific serum prepd. by immunization with disrupted viral capsids. The 54-kDa fusion protein was purified, and the sequence of its first 36 amino acids was detd. and found to be as predicted by the DNA sequence. Both the genus-specific anticapsid serum and the antiserum raised against the fusion protein identified authentic L1 ORF proteins in HPV-1-induced (58 kDa) and HPV-6/11-induced (56 kDa) papillomas. The synthetic peptide antiserum recognized the 56- to 58-kDa protein in HPV-6-induced warts, but not in HPV-1- or HPV-11-infected specimens. Using the fusion protein as antigen in immunoassays, the corresponding antibodies were detected in human sera.

L9 ANSWER 25 OF 26 COPYRIGHT 1993 ACS
TI Expression of human papillomavirus types 6b and 16 L1 open reading frames in Escherichia coli: detection of a 56,000-dalton polypeptide containing genus-specific (common) antigens
SO J. Virol., 61(8), 2389-94
AU Tomita, Yoshimi; Shirasawa, Hiroshi; Simizu, Bunsiti
PY 1987
AN CA107(11):91237z
AB The human papillomavirus (HPV) genome contains two large open reading frames (ORFs), designated L1 and L2. To characterize the antigenic properties of the L1 ORF-encoded proteins, the L1 ORFs of HPV6b and HPV16 were cloned in plasmids, and these were expressed in

E. coli. First, the HPV6b DNA, representing 85.2% of the L1 ORF, was cloned in pUC19 and expressed in E. coli JM83 and RB791 as a 160,000-mol.-wt. (160K) fusion protein with E. coli .beta.-galactosidase (6bL1/.beta.-gal). Second, the HPV16 DNA, representing 89.8% of the L1 ORF, was cloned in pKK233-2 and expressed as a 56K protein (16L1) in strain RB791. Both the 6bL1/.beta.-gal and 16L1 proteins cross-reacted with anti-bovine papillomavirus type 1 (BPV1) antibody raised against disrupted BPV1 particles. An antibody raised against the 6bL1/.beta.-gal fusion protein reacted with the 16L1 protein and also with native papillomavirus antigens in human genital condyloma and bovine fibropapilloma tissues, as detd. by biotin-streptavidin staining. Furthermore, the anti-6bL1/.beta.-gal antibody recognized a 54K protein which seemed to be a major capsid protein of BPV1 and also a 56K protein of biopsies harboring HPV6 or HPV11. It was concluded that the papillomavirus L1 gene product contains genus-specific (common) antigens and that the HPV6 and HPV11 L1 genes specify the 56K capsid protein.

L9 ANSWER 26 OF 26 COPYRIGHT 1993 ACS
TI Expression of the human papillomavirus type 6b L2 open reading frame in Escherichia coli: L2-.beta.-galactosidase fusion proteins and their antigenic properties
SO Virology, 158(1), 8-14
AU Tomita, Yoshimi; Shirasawa, Hiroshi; Sekine, Hiromasa; Simizu, Bunsiti
PY 1987
AN CA106(25):208815j
AB The human papillomavirus (HPV) type 6b genome contains 2 large open reading frames (ORFs), designated L1 and L2, in a putative late region. These ORFs are expected to code for viral structural proteins. To exam. antigenic properties of a L2 gene product, two plasmids which contain N-terminal (L2-N) and internal (L2-I) regions of the HPV6b L2 ORF were constructed and then each region was expressed in E. coli as a fusion protein with E. coli .beta.-galactosidase (.beta.-Gal). Both L2-N/.beta.-Gal and L2-I/.beta.-Gal fusion proteins reacted with anti-.beta.-Gal antibody, but did not react with the antibody prepd. against bovine papillomavirus type 1 (BPV1), in contrast with a high reactivity of HPV6b L1-.beta.-Gal fusion protein with the anti-BPV1 antibody. Antibody raised against the L2-I/.beta.-Gal protein in a rabbit reacted with viral antigens in the nuclei of cells in superficial epithelium of the condyloma acuminatum tissue, but did not react with the antigens in the bovine papilloma tissue. This antibody recognized a protein from condyloma acuminata which migrates to the position of mol. wt. 70K-76K on an electrophoresed SDS-polyacrylamide gel. These results suggested that the L2 ORF of HPV6b codes for a capsid protein which is less cross-reactive than the L1 antigen with anti-BPV1 antibody.

=> fil .biotech
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FILE 'MEDLINE' ENTERED AT 12:06:52 ON 23 FEB 93
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FILE 'EMBASE' ENTERED AT 12:06:52 ON 23 FEB 93

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=> s (papillomavir? or hpv or pv) and capsid and "l1"
FILE 'BIOSIS'
          4551 PAPILLOMAVIR?
          2540 HPV
          3328 PV
          4701 CAPSID
          3365 "L1"
L10         48 (PAPILLOMAVIR? OR HPV OR PV) AND CAPSID AND "L1"

FILE 'MEDLINE'
          4573 PAPILLOMAVIR?
          2682 HPV
          1742 PV
          5866 CAPSID
          3351 "L1"
L11         56 (PAPILLOMAVIR? OR HPV OR PV) AND CAPSID AND "L1"

FILE 'EMBASE'
          2861 PAPILLOMAVIR?
          2258 HPV
          1513 PV
          2445 CAPSID
          2121 "L1"
L12         45 (PAPILLOMAVIR? OR HPV OR PV) AND CAPSID AND "L1"

TOTAL FOR ALL FILES
L13        149 (PAPILLOMAVIR? OR HPV OR PV) AND CAPSID AND "L1"

=> s l13 and (schlegel c? or jensen a?)/au
FILE 'BIOSIS'
           11 SCHLEGEL C?/AU
          639 JENSEN A?/AU
L14          0 L10 AND (SCHLEGEL C? OR JENSEN A?)/AU

FILE 'MEDLINE'
           16 SCHLEGEL C?/AU
          301 JENSEN A?/AU
L15          0 L11 AND (SCHLEGEL C? OR JENSEN A?)/AU

FILE 'EMBASE'
            4 SCHLEGEL C?/AU
          151 JENSEN A?/AU
L16          0 L12 AND (SCHLEGEL C? OR JENSEN A?)/AU

TOTAL FOR ALL FILES
L17          0 L13 AND (SCHLEGEL C? OR JENSEN A?)/AU

=> s (schlegel c? and jensen a?)/au
FILE 'BIOSIS'
           11 SCHLEGEL C?/AU
          639 JENSEN A?/AU
L18          0 (SCHLEGEL C? AND JENSEN A?)/AU

FILE 'MEDLINE'
           16 SCHLEGEL C?/AU
          301 JENSEN A?/AU
L19          0 (SCHLEGEL C? AND JENSEN A?)/AU

FILE 'EMBASE'
            4 SCHLEGEL C?/AU
          151 JENSEN A?/AU
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L20             0 (SCHL  L C? AND JENSEN A?)/AU

TOTAL FOR ALL FILES
L21             0 (SCHLEGEL C? AND JENSEN A?)/AU

=> s (papillomavir? or hpv or pv) and capsid and "l1 protein"
FILE 'BIOSIS'
          4551 PAPILLOMAVIR?
          2540 HPV
          3328 PV
          4701 CAPSID
          3365 "L1"
        559680 "PROTEIN"
            51 "L1 PROTEIN"
                 ("L1"(W)"PROTEIN")
L22           16 (PAPILLOMAVIR? OR HPV OR PV) AND CAPSID AND "L1 PROTEIN"

FILE 'MEDLINE'
          4573 PAPILLOMAVIR?
          2682 HPV
          1742 PV
          5866 CAPSID
          3351 "L1"
        414944 "PROTEIN"
            46 "L1 PROTEIN"
                 ("L1"(W)"PROTEIN")
L23           13 (PAPILLOMAVIR? OR HPV OR PV) AND CAPSID AND "L1 PROTEIN"

FILE 'EMBASE'
          2861 PAPILLOMAVIR?
          2258 HPV
          1513 PV
          2445 CAPSID
          2121 "L1"
        280799 "PROTEIN"
            36 "L1 PROTEIN"
                 ("L1"(W)"PROTEIN")
L24           11 (PAPILLOMAVIR? OR HPV OR PV) AND CAPSID AND "L1 PROTEIN"

TOTAL FOR ALL FILES
L25           40 (PAPILLOMAVIR? OR HPV OR PV) AND CAPSID AND "L1 PROTEIN"

=> dup rem l25
PROCESSING COMPLETED FOR L25
L26           19 DUP REM L25 (21 DUPLICATES REMOVED)

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L26  ANSWER 1 OF 19  COPYRIGHT 1993 BIOSIS              DUPLICATE 1
AN  93:102377  BIOSIS
TI  SELF-ASSEMBLY OF HUMAN PAPILLOMAVIRUS TYPE 1 CAPSIDS BY
    EXPRESSION OF THE L1 PROTEIN ALONE OR BY
    COEXPRESSION OF THE L1 AND L2   ***CAPSID***  PROTEINS.
SO  J VIROL 67 (1). 1993.  315-322. CODEN: JOVIAM ISSN: 0022-538X
AU  HAGENSEE M E; YAEGASHI N; GALLOWAY D A

L26  ANSWER 2 OF 19  COPYRIGHT 1993 BIOSIS              DUPLICATE 2
AN  93:102310  BIOSIS
TI  PAPILLOMAVIRUS L1 MAJOR CAPSID PROTEIN
    SELF-ASSEMBLES INTO VIRUS-LIKE PARTICLES THAT ARE HIGHLY IMMUNOGENIC.
SO  PROC NATL ACAD SCI U S A 89 (24). 1992.  12180-12184. CODEN: PNASA6
    ISSN: 0027-8424
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AU KIRNBAUER R; BOO[redacted]; CHENG N; LOWY D R; SCHI[redacted]ER J T

L26 ANSWER 3 OF 19 COPYRIGHT 1993 BIOSIS DUPLICATE 3
AN 92:433005 BIOSIS
TI DEFINITION OF LINEAR ANTIGENIC REGIONS OF THE HPV16 L1 ***CAPSID*** PROTEIN USING SYNTHETIC VIRION-LIKE PARTICLES.
SO VIROLOGY 189 (2). 1992. 592-599. CODEN: VIRLAX ISSN: 0042-6822
AU ZHOU J; SUN X-Y; DAVIES H; CRAWFORD L; PARK D; FRAZER I H

L26 ANSWER 4 OF 19 COPYRIGHT 1993 BIOSIS DUPLICATE 4
AN 92:501971 BIOSIS
TI HPV-1 L1 PROTEIN EXPRESSED IN COS CELLS DISPLAYS CONFORMATIONAL EPITOPES FOUND ON INTACT VIRIONS.
SO VIROLOGY 190 (1). 1992. 548-552. CODEN: VIRLAX ISSN: 0042-6822
AU GHIM S-J; JENSON A B; SCHLEGEL R

L26 ANSWER 5 OF 19 COPYRIGHT 1993 NLM DUPLICATE 5
AN 92364377 MEDLINE
TI Factors associated with detection of human papillomavirus E4 and L1 proteins in condylomata acuminata.
SO J Infect Dis, (1992 Sep) 166 (3) 512-7
Journal code: IH3 ISSN: 0022-1899
AU Brown DR; Bryan JT; Rodriguez M; Katz BP

L26 ANSWER 6 OF 19 COPYRIGHT 1993 BIOSIS
AN 92:518271 BIOSIS
TI HUMAN PAPILLOMAVIRUS L1 PROTEIN IN CONDYLOMATA ACUMINATA.
SO 32ND INTERSCIENCE CONFERENCE ON ANTIMICROBIAL AGENTS AND CHEMOTHERAPY, ANAHEIM, CALIFORNIA, USA, OCTOBER 11-14, 1992. PROGRAM ABSTR INTERSCI CONF ANTIMICROB AGENTS CHEMOTHERAPY 32 (0). 1992. 255. CODEN: POCHES
AU WOOLS K; BRYAN J; BROWN D

L26 ANSWER 7 OF 19 COPYRIGHT 1993 BIOSIS
AN 91:204291 BIOSIS
TI CHARACTERIZATION OF MURINE POLYCLONAL ANTISERA AND MONOCLONAL ANTIBODIES GENERATED AGAINST INTACT AND DENATURED HUMAN PAPILLOMAVIRUS TYPE 1 VIRIONS.
SO J VIROL 65 (3). 1991. 1578-1583. CODEN: JOVIAM ISSN: 0022-538X
AU YAEGASHI N; JENISON S A; VALENTINE J M; DUNN M; TAICHMAN L B; BAKER D A; GALLOWAY D A

L26 ANSWER 8 OF 19 COPYRIGHT 1993 BIOSIS DUPLICATE 6
AN 92:103378 BIOSIS
TI IDENTIFICATION OF THE NUCLEAR LOCALIZATION SIGNAL OF HUMAN PAPILLOMAVIRUS TYPE 16 L1 PROTEIN.
SO VIROLOGY 185 (2). 1991. 625-632. CODEN: VIRLAX ISSN: 0042-6822
AU ZHOU J; DOORBAR J; SUN X Y; CRAWFORD L V; MCLEAN C S; FRAZER I H

L26 ANSWER 9 OF 19 COPYRIGHT 1993 BIOSIS
AN 91:456420 BIOSIS
TI TYPE-SPECIFIC AND CROSS-REACTIVE EPITOPES IN HUMAN PAPILLOMAVIRUS TYPE 16 CAPSID PROTEINS.
SO VIROLOGY 184 (1). 1991. 460-464. CODEN: VIRLAX ISSN: 0042-6822
AU BEISS B K; HEIMER E; FELIX A; BURK R D; RITTER D B; MALLON R G; KADISH A S

L26 ANSWER 10 OF 19 COPYRIGHT 1993 NLM
AN 91134982 MEDLINE
TI The induction of cytotoxic T-lymphocyte precursor cells by recombinant vaccinia virus expressing human papillomavirus

type 16 L1.
SO Virology, (1991 Mar) 181 (1) 203-10
Journal code: XEA ISSN: 0042-6822
AU Zhou JA; McIndoe A; Davies H; Sun XY; Crawford L

L26 ANSWER 11 OF 19 COPYRIGHT 1993 BIOSIS DUPLICATE 7
AN 91:295875 BIOSIS
TI HUMAN PAPILLOMAVIRUS TYPE 16 INFECTION OF THE CERVIX A COMPARISON OF DIFFERING DNA DETECTION MODES AND THE USE OF MONOCLONAL ANTIBODIES AGAINST THE MAJOR CAPSID PROTEIN.
SO GENITOURIN MED 67 (2). 1991. 87-91. CODEN: GEMEE2 ISSN: 0266-4348
AU LACEY C J N; WELLS M; MACDERMOTT R I J; GIBSON P E

L26 ANSWER 12 OF 19 COPYRIGHT 1993 BIOSIS DUPLICATE 8
AN 90:308849 BIOSIS
TI HUMAN PAPILLOMAVIRUS TYPE 1 PRODUCES REDUNDANT AS WELL AS POLYCISTRONIC MESSENGER RNA IN PLANTAR WARTS.
SO J VIROL 64 (6). 1990. 3144-3149. CODEN: JOVIAM ISSN: 0022-538X
AU PALERMO-DILTS D A; BROKER T S R; CHOW L T

L26 ANSWER 13 OF 19 COPYRIGHT 1993 BIOSIS
AN 91:49209 BIOSIS
TI DEFINITION OF MURINE T HELPER CELL DETERMINANTS IN THE MAJOR CAPSID PROTEIN OF HUMAN PAPILLOMAVIRUS TYPE 16.
SO J GEN VIROL 71 (11). 1990. 2691-2698. CODEN: JGVIAY ISSN: 0022-1317
AU DAVIES D H; HILL C M; ROTHBARD J B; CHAIN B M

L26 ANSWER 14 OF 19 COPYRIGHT 1993 NLM
AN 91011369 MEDLINE
TI Increased antibody responses to human papillomavirus type 16 L1 protein expressed by recombinant vaccinia virus lacking serine protease inhibitor genes.
SO J Gen Virol, (1990 Sep) 71 (Pt 9) 2185-90
Journal code: I9B ISSN: 0022-1317
AU Zhou J; Crawford L; McLean L; Sun XY; Stanley M; Almond N; Smith GL

L26 ANSWER 15 OF 19 COPYRIGHT 1993 BIOSIS DUPLICATE 9
AN 90:354554 BIOSIS
TI PRODUCTION AND CHARACTERIZATION OF A MONOCLONAL ANTIBODY TO HUMAN PAPILLOMAVIRUS TYPE 16 USING RECOMBINANT VACCINIA VIRUS.
SO J CLIN PATHOL (LOND) 43 (6). 1990. 488-492. CODEN: JCPAAK ISSN: 0021-9746
AU MCLEAN C S; CHURCHER M J; MEINKE J; SMITH G L; HIGGINS G; STANLEY M; MINSON A C

L26 ANSWER 16 OF 19 COPYRIGHT 1993 BIOSIS
AN 90:155714 BIOSIS
TI HUMORAL ASSAYS OF HUMAN SERA TO DISRUPTED AND NONDISRUPTED EPITOPES OF HUMAN PAPILLOMAVIRUS TYPE 1.
SO VIROLOGY 174 (2). 1990. 388-398. CODEN: VIRLAX ISSN: 0042-6822
AU STEELE J C; GALLIMORE P H

L26 ANSWER 17 OF 19 COPYRIGHT 1993 BIOSIS DUPLICATE 10
AN 89:513896 BIOSIS
TI CHARACTERIZATION OF RARE HUMAN PAPILLOMAVIRUS TYPE 11 MESSENGER RNA SPECIES CODING FOR REGULATORY AND STRUCTURAL PROTEINS USING THE POLYMERASE CHAIN REACTION.
SO VIROLOGY 172 (2). 1989. 489-497. CODEN: VIRLAX ISSN: 0042-6822
AU ROTENBERG M O; CHOW L T; BROKER T R

L26 ANSWER 18 OF 19 COPYRIGHT 1993 BIOSIS DUPLICATE 11
AN 89:161987 BIOSIS

```
 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
=> s papillomaviris
L1            0 PAPILLOMAVIRIS
=>
=> s papillomavirus
L2           95 PAPILLOMAVIRUS
=> s "L!"
L3       426702 "L!"
                  ("L")

=> s "L1"
L4        22478 "L1"
=> s l2 and l4
L5           13 L2 AND L4
=> d l5 1-13
```

1. 5,411,857, May 2, 1995, Probes for papillomaviruses and an in vitro diagnostic procedure for papilloma infections; Sylvie Beaudenon, et al., 435/5, 6; 536/23.72 [IMAGE AVAILABLE]

2. 5,401,627, Mar. 28, 1995, Antibodies to human **papillomavirus** latent proteins, diagnostic systems and methods; Joakim Dillner, et al., 435/5, 240.27; 436/518, 548; 530/387.9, 388.3, 389.4 [IMAGE AVAILABLE]

3. 5,364,758, Nov. 15, 1994, Primers and process for detecting human **papillomavirus** genotypes by PCR; Christophorus J. Meijer, et al., 435/5, 6, 91.2; 536/24.32, 24.33; 935/78 [IMAGE AVAILABLE]

4. 5,346,811, Sep. 13, 1994, Method and products for human **papillomavirus** detection; Ivan Galindo-Castro, et al., 435/5, 6; 530/387.1; 536/24.32 [IMAGE AVAILABLE]

5. 5,342,930, Aug. 30, 1994, Isolated DNA of human **papillomavirus** type 54(HPV54); Gerard Orth, et al., 536/23.72; 435/172.3, 320.1; 536/24.32 [IMAGE AVAILABLE]

6. 5,334,515, Aug. 2, 1994, Method for altering a nucleotide sequence; Ayoub Rashtchian, et al., 435/91.2, 91.41, 91.51, 172.3, 227 [IMAGE AVAILABLE]

7. 5,283,171, Feb. 1, 1994, Compositions for and detection of human **papillomavirus** by specific oligonucleotide polymerase primers using the polymerase chain reaction; M. Michele Manos, et al., 435/5, 6, 810; 436/501, 811; 536/23.1, 24.3, 24.31, 24.32, 24.33; 935/3, 20, 77, 78, 88 [IMAGE AVAILABLE]

8. 5,194,370, Mar. 16, 1993, Promoter ligation activated transcription amplification of nucleic acid sequences; Mark S. Berninger, et al., 435/6, 91.21; 436/94, 501; 935/77, 78 [IMAGE AVAILABLE]

9. 5,182,377, Jan. 26, 1993, Probes for detection of human **papillomavirus**; M. Michele Manos, et al., 536/24.32; 435/5, 6; 436/501, 811; 536/24.33; 935/3, 20, 77, 78 [IMAGE AVAILABLE]

10. 5,180,806, Jan. 19, 1993, Polypeptides and compositions of human **papillomavirus** latent proteins, diagnostic systems and methods; Joakim Dillner, et al., 530/326, 324, 325 [IMAGE AVAILABLE]

=) s papillomavirus
L1 78 PAPILLOMAVIRUS

=) s "L1"
L2 20885 "L1"

=) s l1 and l2
L3 8 L1 AND L2

=) d l3 1-8

1. 5,334,515, Aug. 2, 1994, Method for altering a nucleotide sequence; Ayoub Rashtchian, et al., 435/91.2, 91.41, 91.51, 172.3, 227 [IMAGE AVAILABLE]

2. 5,283,171, Feb. 1, 1994, Compositions for and detection of human papillomavirus by specific oligonucleotide polymerase primers using the polymerase chain reaction; M. Michele Manos, et al., 435/5, 6, 810; 436/501, 811; 536/23.1, 24.3, 24.31, 24.32, 24.33; 935/3, 20, 77, 78, 88 [IMAGE AVAILABLE]

3. 5,194,370, Mar. 16, 1993, Promoter ligation activated transcription amplification of nucleic acid sequences; Mark S. Berninger, et al., 435/6, 91.21; 436/94, 501; 935/77, 78 [IMAGE AVAILABLE]

4. 5,182,377, Jan. 26, 1993, Probes for detection of human papillomavirus ; M. Michele Manos, et al., 536/24.32; 435/5, 6; 436/501, 811; 536/24.33; 935/3, 20, 77, 78 [IMAGE AVAILABLE]

5. 5,180,665, Jan. 19, 1993, Polypeptides and compositions of human papillomavirus latent proteins, diagnostic systems and methods; Joakim Dillner, et al., 530/326, 324, 325 [IMAGE AVAILABLE]

6. 5,057,411, Oct. 15, 1991, Type-specific papillomavirus DNA sequences and peptides; Wayne D. Lancaster, et al., 435/6, 5; 436/501, 811; 536/23.72, 24.32; 935/78 [IMAGE AVAILABLE]

7. 4,886,741, Dec. 12, 1989, Use of volume exclusion agents for the enhancement of in situ hybridization; Dennis E. Schwartz, 435/5, 6, 21, 810; 436/501; 935/77, 78 [IMAGE AVAILABLE]

8. 4,551,270, Nov. 5, 1985, DNA Fragments coding for polypeptides containing at least one antigenic determinant of the papillomavirus , particularly of the HPV 1a type and corresponding polypeptides; Olivier Danos, et al., 530/327, 329; 930/220, DIG.811 [IMAGE AVAILABLE]

```
      (FILE 'HOME' ENTERED AT 14:09:13 ON 16 AUG 94)

      FILE 'CA' ENTERED AT 14:09:25 ON 16 AUG 94
L1          1757 S PAPILLOMAVIRUS/AB,BI
L2          1104 S HPV/AB,BI
L3          7212 S 30/AB,BI
L4       1572748 S 18/AB,BI
L5           804 S (L1 OR L2) AND (L3 OR L4)
L6        295051 S DNA/AB,BI
L7           139 S L5 AND L6
L8            28 S L7 AND TYPE/AB,BI
L9             6 S (L1 OR L2) AND (TYPE 18)/AB,BI
L10            2 S (L1 OR L2) AND (TYPE 3)/AB,BI
L11            2 S (L1 OR L2) AND (TYPE 30)/AB,BI

      FILE 'MEDLINE' ENTERED AT 14:09:13 ON 16 AUG 94
L12            2 S L11
L13            0 S L9

      FILE 'BIOSIS' ENTERED AT 14:11:57 ON 16 AUG 94
L14            2 S L12
L15            1 S L13

      FILE 'BIOSABS, ABI-INFORM' ENTERED AT 14:14:24 ON 16 AUG 94

=> s l12 or l13
FILE 'BIOSABS'
'L13' IS NOT A VALID FIELD CODE
             2 PAPILLOMAVIRUS/AB
           134 PAPILLOMAVIRUS/BI
             2 HPV/AB
            69 HPV/BI
             2 (TYPE 30)/AB
         54315 "TYPE"/BI
           422 "30"/BI
             0 (TYPE 30)/BI
                 (("TYPE"(W)"30")/BI)
             2 PAPILLOMAVIRUS/AB
           134 PAPILLOMAVIRUS/BI
             2 HPV/AB
            69 HPV/BI
             2 (TYPE 18)/AB
         54315 "TYPE"/BI
         54315 "18"/BI
             4 (TYPE 18)/BI
                 (("TYPE"(W)"18")/BI)
L16            6 L12 OR L13

FILE 'ABI-INFORM'
             1 PAPILLOMAVIRUS/AB
             1 PAPILLOMAVIRUS/BI
             0 HPV/AB
             0 HPV/BI
```

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        [illegible] "TYPE"/AB
            [illegible] "20"/AB
              [illegible] (TYPE 20)/AB
                  (("TYPE"(W)"20"))/AB)
        10921 "TYPE"/BI
          420 "20"/BI
            0 (TYPE 20)/BI
                  (("TYPE"(W)"20"))/BI)
            1 PAPILLOMAVIRUS/AB
            2 PAPILLOMAVIRUS/BI
            2 HPV/AB
            2 HPV/BI
        29717 "TYPE"/AB
        55212 "12"/AB
            2 (TYPE 12)/AB
                  (("TYPE"(W)"12"))/AB)
        52931 "TYPE"/BI
       102742 "12"/BI
            7 (TYPE 12)/BI
                  (("TYPE"(W)"12"))/BI)
L17           0 L12 OR L13

TOTAL FOR ALL FILES
L18           0 L12 OR L13

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  numbers of terms.

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=> d 16 30 all

L3   ANSWER 23 OF 30  CA  COPYRIGHT 1994 ACS
AN   111:226132  CA
TI   Human ***papillomavirus***  ***type***  20 ( ***HPV*** -20),
     an ***HPV*** -3-related ***subtype***  associated with skin warts
AU   Favre, Michel; Obalek, Slawomir; Jablonska, Stefania; Orth, Gerard
CS   Inst. Pasteur, Paris, 75724, Fr.
SO   J. Virol. (1989), 63(11), 4909
     [illegible]
DT   Journal
```

CC 3-5 (Biochemical Genetics)

AB [illegible] **Best Available Copy** [illegible] of the genome of human ***papillomavirus*** ***type*** 28 (***HPV*** -28) is [illegible]. The virus is a distinct ***subtype*** and by hybridization analyses is most closely related to ***HPV*** -3 and ***HPV*** - ***10*** .

ST ***DNA*** human papilloma virus restriction mapping; cloning ***DNA*** human ***papillomavirus*** 28

IT Molecular cloning
    (of ***DNA*** of human ***papillomavirus*** 28)

IT Deoxyribonucleic acids
    (of human ***papillomavirus*** 28, restriction mapping of)

IT Virus, animal
    (human papilloma 28, ***DNA*** of, cloning and restriction mapping of)

=>

L15 ANSWER 1 OF 1 BIOSIS COPYRIGHT 1994 BIOSIS
AN 85:199962 BIOSIS
DN BR29:69059
TI GENITAL ***PAPILLOMAVIRUS*** INFECTIONS.
AU ZUR HAUSEN H
CS DEUTSCHES KREBSFORCHUNGSZENTRUM, IM NEUENHEIMER FELD 280, D-6900 HEIDELBERG 1, FRG.
SO MELNICK, J. L., S. OCHOA AND J. ORO (ED.). PROGRESS IN MEDICAL VIROLOGY, VOL. 32. VIRUSES, ONCOGENES AND CANCER; 3RD INTERNATIONAL DURAN-REYNALS SYMPOSIUM, BARCELONA, SPAIN, MAY 14-17, 1984. VIII+222P. S. KARGER: BASEL, SWITZERLAND; NEW YORK, N.Y., USA. ILLUS. 2 (0). 1985. 15-21. CODEN: PMVIA6 ISBN: 3-3055-3976-2 ISSN: 0079-645X
LA English
ST TYPE 6 VIRUS TYPE 11 VIRUS ***TYPE*** ***10*** VIRUS TYPE 16 VIRUS TYPE 18 VIRUS HUMAN
CC General Biology-Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520
   Reproductive System-Pathology *16506
   Neoplasms and Neoplastic Agents-Carcinogens and Carcinogenesis *24007
   Virology-Animal Host Viruses 33506
   Medical and Clinical Microbiology-Virology *36006
BC Papovaviridae 02226
   Hominidae 86215

=> d l18 1-2 all

L18 ANSWER 1 OF 2 CA COPYRIGHT 1994 ACS
AN 100:42291 CA
TI The genomes of bovine papillomaviruses types 3 and 4 are colinear
AU Coggins, L. W.; Hebblich, I.; Smith, K. T.; Slater, A. A.; Ross, F. A.; Pfister, H.; Campo, M. S.
CS Wolfson Lab. Mol. Pathol., Beatson Inst. Cancer Res., Bearsden/Glasgow, G61 1BD, UK
SO J. Gen. Virol. (1983), 64(12), 2771-6
   CODEN: JGVIAY; ISSN: 0022-1317
DT Journal
LA English
CC 10-4 (Microbial Biochemistry)
AB The 7.2 kilobase (kb) genomic DNA of bovine ***papillomavirus*** ***type*** ***3*** (BPV-3) was molecularly cloned using its unique EcoRI site, and the 7.2 kb genome of BPV-4 was cloned using its single BamHI site. The viral genomes were compared by liq. hybridization, Southern blot hybridization and heteroduplex mapping. Low stringency hybridization conditions revealed that the genomes

relative alignment of the restriction and nucleotide ... of the 2
... genomes ... the genomes as linearized for cloning are
out of phase by 1.7 kb, so that the single ... site of BPV-3
appears to coincide with the ..., both of which cause ...
... warts, share the same phys. organization but exhibit
sequence divergence.

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ST DNA bovine papilloma virus
IT Thymidine ... acid
(of bovine papilloma viruses types 3 and 4, colinearity of)
IT Virus, animal
(bovine papilloma, genomes of types 3 and 4 of, colinearity of)

L17 ANSWER 2 OF 2 CA COPYRIGHT 1994 ACS
AN 89:21482 CA
TI Characterization of two types of human papillomaviruses in lesions of epidermodysplasia verruciformis
AU Orth, Gerard; Jablonska, Stefania; Favre, Michel; Croissant, Odile; Jarzabek-Chorzelska, Maria; Rzesa, Genowefa
CS Unite Rech. Etiol. Virale Cancers Hum., Inst. Gustave-Roussy, Villejuif, Fr.
SO Proc. Natl. Acad. Sci. U. S. A. (1978), 75(3), 1537-41
CODEN: PNASA6; ISSN: 0027-8424
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
Section cross-reference(s): 10
AB Human papillomaviruses (HPVs) found in lesions of 11 patients suffering from epidermodysplasia verruciformis were compared to ***HPV*** type 1 (***HPV*** -1) and type 2 (***HPV*** -2) previously characterized in plantar and common warts, resp. Complementary RNAs (cRNAs) to ***HPV*** -1, ***HPV*** -2, and viruses from 2 patients with epidermodysplasia verruciformis (J.D. ***HPV*** and J.K. ***HPV***) were used in cRNA-DNA filter hybridization expts. No sequence homol. was detected between ***HPV*** -1 or ***HPV*** -2 DNAs and DNAs obtained from the 11 epidermodysplasia verruciformis ***HPV*** isolates. Furthermore, with J.D. and J.K. ***HPV*** cRNAs, epidermodysplasia verruciformis ***HPV*** DNAs fall into 2 groups showing little, if any, sequence homol. A lower extent of annealing was obsd. for the DNAs of some isolates showing a genetic heterogeneity within each of the groups. Almost no antigenic crossreaction was detected by immunodiffusion and indirect immunofluorescence tests, either between epidermodysplasia verruciformis HPVs and ***HPV*** -1 or ***HPV*** -2 or between J.D. and J.K. HPVs. Viruses belonging to the same group have common antigenic properties, but antigenic differences were obsd. when 2 of the viruses having only partial DNA sequence homol. were compared. Viruses related to J.D. ***HPV*** were preferentially assocd. with flat wart-like lesions of epidermodysplasia verruciformis and were further found in the lesions of 5 patients bearing multiple flat warts. Viruses related to J.K. ***HPV*** were found in morphol. distinct lesions (red spots) present in some patients with epidermodysplasia verruciformis. Thus, it is proposed to distinguish 2 other types of HPVs designated provisionally as ***HPV*** ***type*** ***3*** (***HPV*** -3) and type 4 (***HPV*** -4), with J.D. and J.K. HPVs as prototypes, resp. Malignant conversion of some epidermodysplasia verruciformis lesions is more frequently assocd. with ***HPV*** -4 than with ***HPV*** -3 infection.
ST human papilloma virus epidermodysplasia verruciformis
IT Skin, disease or disorder
(epidermodysplasia verruciformis, human papilloma viruses assocd. with)
IT Virus, animal
(human papilloma, in epidermodysplasia verruciformis)

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          1802 PAPILLOMAVIRUS/BI
         40570 12/BI
          7841 20/BI
L19          13 PAPILLOMAVIRUS/BI AND (L2 OR 3A)/BI

=> D L19 1-13

L19  ANSWER 1 OF 13  CA  COPYRIGHT 1994 ACS
AN   121:7188  CA
TI   Integration of human  ***papillomavirus***  type 6a DNA in a
     tonsillar carcinoma: chromosomal localization and nucleotide
     sequence of the genomic target region
AU   Kahn, T.; Turazza, E.; Ojeda, R.; Bercovich, A.; Stremlau, A.;
     Lichter, P.; Poustka, A.; Grinstein, S.; zur Hausen, H.
CS   Deutsches Krebsforschungszent. Angew. Tumorvirol., Heidelberg,
     69120, Germany
SO   Cancer Res. (1994), 54(5), 1305-12
     CODEN: CNREA8; ISSN: 0008-5472
DT   Journal
LA   English

L19  ANSWER 2 OF 13  CA  COPYRIGHT 1994 ACS
AN   120:210849  CA
TI   Ribozymes for prevention of replication of RNA viruses
IN   Draper, Kenneth G.; Dudycz, Lech W.; Mcswiggen, James A.; Macejak,
     Dennis G.; Holecek, James J.; Mamone, J. Anthony
PA   Ribozyme Pharmaceuticals, Inc., USA
SO   PCT Int. Appl., 287 pp.
     CODEN: PIXXD2
PI   WO 9323569 A1  931125
DS   W: AU, CA, JP
     RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
AI   WO 93-US4020  930429
PRAI US 92-882689  920511
     US 92-882712  920514
     US 92-882713  920514
     US 92-882714  920514
     US 92-882823  920514
     US 92-882824  920514
     US 92-882886  920514
     US 92-882888  920514
     US 92-882889  920514
     US 92-882921  920514
     US 92-882922  920514
     US 92-883823  920514
     US 92-883849  920514
     US 92-884073  920514
     US 92-884074  920514
     US 92-884333  920514
     US 92-884422  920514
     US 92-884431  920514
     US 92-884436  920514
     US 92-884521  920514
DT   Patent
LA   English

L19  ANSWER 3 OF 13  CA  COPYRIGHT 1994 ACS
AN   120:122252  CA
TI   L1 major capsid protein as  ***papillomavirus***  vaccines
IN   Schlegel, C. Richard; Jenson, A. Bennett
PA   Georgetown University, USA
SO   PCT Int. Appl., 45 pp.
     CODEN: PIXXD2
PI   WO 9402157 A1  940203
DS   W: CA, JP, KR
```

L19 ANSWER 4 OF 13 CA COPYRIGHT 1994 ACS
AN 119:247721 CA
TI Cotransfection of HPV-16 and v-fos DNA induces tumorigenicity of primary human keratinocytes
AU Pei, X. Fang; Reed, Jeanne M.; Greenhalgh, David; Schlegel, Richard
CS Med. Sch., Georgetown Univ., Washington, DC, USA
SO Virology (1993), 196(2), 855-60
CODEN: VIRLAY; ISSN: 0042-6822
DT Journal
LA English

L19 ANSWER 5 OF 13 CA COPYRIGHT 1994 ACS
AN 119:246017 CA
TI Overexpression of wild-type p53 alters growth and differentiation of normal human keratinocytes but not human ***papillomavirus*** -expressing cell lines
AU Woodworth, Craig D.; Wang, Hong; Simpson, Scott; Alvarez-Salas, Luis M.; Notario, Vincente
CS Lab. Biol., Natl. Cancer Inst., Bethesda, MD, 20892, USA
SO Cell Growth Differ. (1993), 4(5), 367-76
CODEN: CGDIE7; ISSN: 1044-9523
DT Journal
LA English

L19 ANSWER 6 OF 13 CA COPYRIGHT 1994 ACS
AN 117:206645 CA
TI Human ***papillomavirus*** type 58 DNA sequence
AU Kirii, Yasuyuki; Iwamoto, Seiichi; Matsukura, Toshihiko
CS Kanebo Inst. Cancer Res., Osaka, 534, Japan
SO Virology (1991), 185(1), 424-7
CODEN: VIRLAX; ISSN: 0042-6822
DT Journal
LA English

L19 ANSWER 7 OF 13 CA COPYRIGHT 1994 ACS
AN 117:5272 CA
TI Abnormalities of epidermal differentiation associated with expression of the human ***papillomavirus*** type 1 early region in transgenic mice
AU Tinsley, J. M.; Fisher, C.; Searle, P. F.
CS Med. Sch., Univ. Birmingham, Birmingham, B15 2TJ, UK
SO J. Gen. Virol. (1992), 73(5), 1251-60
CODEN: JGVIAY; ISSN: 0022-1317
DT Journal
LA English

L19 ANSWER 8 OF 13 CA COPYRIGHT 1994 ACS
AN 115:86270 CA
TI A comparative sequence analysis of two human ***papillomavirus*** (HPV) types 6a and 57
AU Hirsch-Behnam, Anja; Delius, Hajo; De Villiers, Ethel Michele
CS Inst. Angew. Tumorvirol., Dtsch. Krebsforschungszent., Heidelberg, 6900, Fed. Rep. Ger.
SO Virus Res. (1990), 16(1), 21-37
CODEN: VIRESF; ISSN: 0168-1702
DT Journal
LA English

L19 ANSWER 9 OF 13 CA COPYRIGHT 1994 ACS

TI [illegible] chimaeras preparation for recombinant manufacture of
[illegible] Best Available Copy [illegible]
AU Almond, Jeffrey William; Evans, David John; Burke, Karen Lesle,
PA Medical Research Council, UK; University of Reading
SO PCT Int. Appl., 47 pp.
CODEN: PIXXD2
PI WO 9210140 A2 921210
DS W: CA, GB, JP, US
RW: AT, BE, CH, DE, DK, ES, FR, GB, IT, LU, NL, SE
AI WO 90-GB841 900531
PRAI GB 89-12490 890531
GB 90-9644 900430
DT Patent
LA English

L19 ANSWER 10 OF 13 CA COPYRIGHT 1994 ACS
AN 114:203225 CA
TI Human ***papillomavirus*** type 6 and 11 E4 gene products in condyloma acuminata
AU Tomita, Yoshimi; Fuse, Akira; Sekine, Hiromasa; Shirasawa, Hiroshi; Shimizu, Kenichi; Sugimoto, Masanobu; Funahashi, Shinichi
CS Sch. Med., Chiba Univ., Chiba, 280, Japan
SO J. Gen. Virol. (1991), 72(3), 731-4
CODEN: JGVIAY; ISSN: 0022-1317
DT Journal
LA English

L19 ANSWER 11 OF 13 CA COPYRIGHT 1994 ACS
AN 114:42572 CA
TI The molecular specificity of linear B-epitopes in the E7 open reading frame protein of human ***papillomavirus*** 16 defined by monoclonal antibodies
AU Tindle, Robert W.; Zhou, Wen Dao; Saul, Allan; Frazer, Ian H.
CS Lions Hum. Immunol. Lab., Princess Alexandra Hosp., Brisbane, 4102, Australia
SO Pept. Res. (1990), 3(4), 162-6
CODEN: PEREEO; ISSN: 1040-5704
DT Journal
LA English

L19 ANSWER 12 OF 13 CA COPYRIGHT 1994 ACS
AN 109:87168 CA
TI Identification of human ***papillomavirus*** type 11 E4 gene products in human tissue implants from athymic mice
AU Brown, Darron R.; Chin, Michael T.; Strike, David G.
CS Sch. Med. Dent., Univ. Rochester, Rochester, NY, 14642, USA
SO Virology (1988), 165(1), 262-7
CODEN: VIRLAX; ISSN: 0042-6822
DT Journal
LA English

L19 ANSWER 13 OF 13 CA COPYRIGHT 1994 ACS
AN 99:207219 CA
TI Human papillomaviruses associated with epidermodysplasia verruciformis. II. Molecular cloning and biochemical characterization of human ***papillomavirus*** ***3a*** , 5, ***10*** , and 12 genomes
AU Kremsdorf, Dina; Jablonska, Stefania; Favre, Michel; Orth, Gerard
CS Inst. Pasteur, Inst. Natl. Sante Rech. Med., Paris, 75015, Fr.
SO J. Virol. (1983), 48(2), 340-51
CODEN: JOVIAM; ISSN: 0022-538X
DT Journal
LA English

AN ANSWER 17 OF 17 CA COPYRIGHT 1994 ACS
AN 99:207810 CA

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TI Human papillomaviruses associated with epidermodysplasia verruciformis. II. Molecular cloning and biochemical characterization of human ***papillomaviruses*** HPV3a , 8, [illegible] , and 12 genomes

AU Kremsdorf, Dina; Jablonska, Stefania; Favre, Michel; Orth, Gerard
CS Inst. Pasteur, Inst. Natl. Sante Rech. Med., Paris, 75015, Fr.
SO J. Virol. (1983), 48(2), 342-51
CODEN: JOVIAM; ISSN: 0022-538X
DT Journal
LA English
SC 3-2 (Biochemical Genetics)
Section cross-reference(s): 14
AB The DNAs of 4 human papillomaviruses (HPVs) that were found in the benign lesions of 3 patients suffering from epidermodysplasia verruciformis were characterized. The flat, wart-like lesions and the macular lesions of patient 1 contained 2 viruses, HPV-3a and HPV-8, resp., whose genomes had previously been only partially characterized. The flat, wart-like lesions of patient 2 and the macular lesions of patient 3 each contained a virus previously considered as belonging to types 3 and 5, resp. These viruses are different from all the HPV types so far characterized; they have tentatively been named HPV-10 and HPV-12. The HPV-3a, HPV-8, and HPV-12 DNAs and the 2 SalI fragments of HPV-10 DNA (94.1 and 5.9% of the genome length) were cloned in Escherichia coli after having been inserted in plasmid pBR322. The cloned HPV genomes have similar sizes (.apprx.7700 base pairs), but their guanine-plus-cytosine contents differ from 41.8% for HPV-12 DNA to 43.5% for HPV-3a DNA. The study of the sensitivity of the 4 HPV DNAs to 14 restriction endonucleases permitted the construction of cleavage maps. Evidence for conserved restriction sites was found only for the HPV-3a and HPV-10 genome, since 5 of the 21 restriction sites localized in the HPV-3a DNA seem also to be present in the HPV-10 DNA. Hybridization expts., performed in liq. phase at satn., showed a 25% sequence homol. between HPV-3a and HPV-10 DNAs, 17-29% sequence homol. among HPV-5, HPV-8, and HPV-12 DNAs, almost no sequence homol. between the HPV-3a or HPV-10 DNA and the other HPV DNAs, and a weak homol. between HPV-9 DNA and HPV-8 or HPV-12 DNA. Blot hybridization expts. showed no sequence homol. between the HPV-3a, HPV-8, and HPV-12 DNAs and the DNAs of the HPVs assocd. with skin warts (HPV-1a, HPV-2, HPV-4, and HPV-7) or with mucocutaneous and mucous membrane lesions (HPV-6b and HPV-11a, resp.). One exception was a weak sequence homol. between the HPV-2 prototype and HPV-3a or HPV-10 DNA. Thus, at least the following 6 HPV types are assocd. with epidermodysplasia verruciformis: HPV-3a and HPV-10, which are assocd. with flat warts in the general population; and HPV-5, HPV-8, HPV-9, and HPV-12, which are assocd. specifically with epidermodysplasia verruciformis.
ST ***papillomavirus*** human epidermodysplasia verruciformis; virus papilloma human epidermodysplasia verruciformis
IT Molecular cloning
(of DNA, of human papillomaviruses assocd. with epidermodysplasia verruciformis)
IT Deoxyribonucleic acids
(of human papillomaviruses assocd. with epidermodysplasia verruciformis, characterization of)
IT Skin, disease or disorder
(epidermodysplasia verruciformis, DNA of human papillomavirus assocd. with, cloning and characterization of)
IT Virus, animal
(papilloma, DNA of, assocd. with epidermodysplasia verruciformis, cloning and characterization of)